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17
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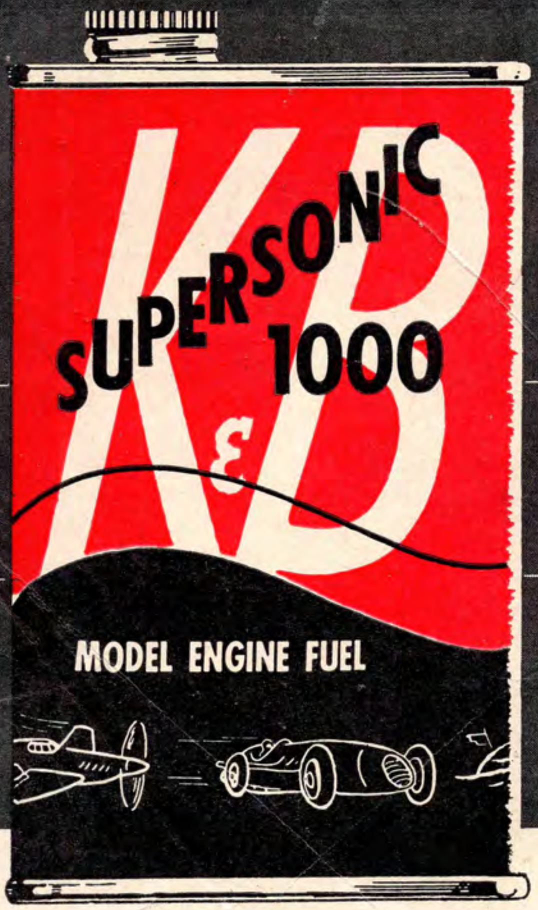

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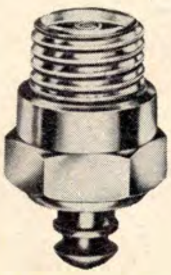

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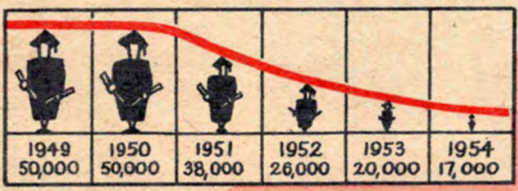

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AIR TRAILS

July
1952
Vol. 38, No. 4

Cover—From R. to L.: Nike, Hermes, Matador, Lark, Loki, Snark. Painted by Frank Tinsley.

THE LEADING MAGAZINE OF AIR PROGRESS AND AEROMODELING

Editor: Albert L. Lewis. **Technical Editor:** Alexis Dawydoff. **Editorial Production:** Carl Happel. **Art Director:** W. F. Tyler. **Editorial Assistants:** Rose Borello and Rosalba Accardi. **Special Correspondents**—Washington: Kendall K. Hoyt; West Coast Modeling: Dick Everett.

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Walter J. McBride, Advertising Mgr., 575 Madison Ave., New York 22; Frank C. Smith, Mid-Western Adv. Mgr., 230 No. Michigan Ave., Chicago 1; West Coast Advertising Representative, Kimball, Menne Co., 2550 Beverly Blvd., Los Angeles 4, Calif.

AIR TRAILS published monthly by Street & Smith Publications, Inc., at 575 Madison Ave., New York 22, N. Y. Entered as second class matter at the post office at New York, N. Y. Authorized as second class mail Post Office Dept., Ottawa, Canada. Copyright, 1952, by Street & Smith Publications, Inc. 35c per copy. This issue is Vol. XXXVIII, No. 4. Please advise us if you move; allow four weeks for change of address. Give old and new address when notifying us. Subscription correspondence should be addressed to Subscription Dept., Street & Smith Publications, Inc., 304 E. 45th St., New York 17, N. Y. All characters used in fiction and semi-fiction stories in this magazine are fictitious. We cannot accept responsibility for unsolicited manuscripts or art work. All submissions must include return postage. Printed in 3 U.S.A.

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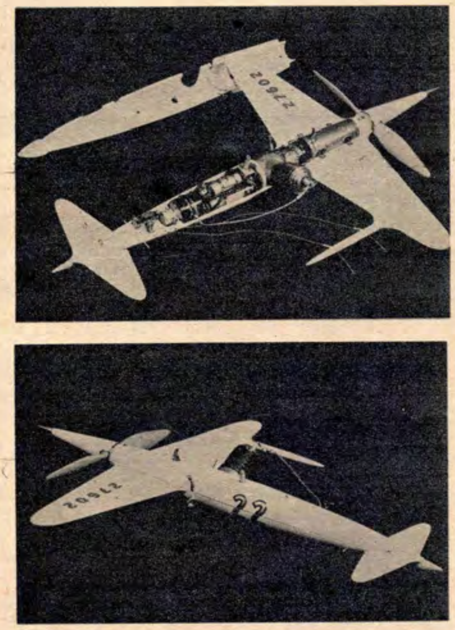
FROM THE READER

All communications to the editorial offices should be addressed to Air Trails, 304 E. 45th St., New York 17, N. Y.

"Zoftig" Speed Job . . . At a club meeting I was telling the fellows about a speed job I saw at Stewart AFB around 1947. It was a canard with a long, thin pencil fuselage with the engine buried. The prop was on an extended shaft which passed through a shaft tunnel in the gas tank. It was a real zoftig ship, believe me. The gang laughed at me, though. Can you back me up and supply any concrete info?

Norman Tate, Hempstead, N. Y.



• We can't supply much info, Norm, but here's a pictorial proof. We believe the ignition Arden was an .09.

Built our R/C Unit . . . I have constructed a receiver to your design as shown in the Annual and I am certainly pleased with the results. It is operated very satisfactorily in the Laboratory without any adjustment.

Carl F. Massopust, Gary, Ind.

Assist from "AT" to ROTC . . . Will you please forward me a tearsheet copy of the "100 3-views of World Airplanes", which appeared in the December, 1951 issue of Air Trails? These are for use in my Air Force ROTC class at the University of California.

Don Esacove, Los Angeles, Calif.

Full-Size Plans . . . I would like to thank you for your plan service. The full-size plans are more than a help—they give a very clear and concise picture of just how each part should be made and put together to make a thing of beauty out of a pile of wood, paper and wire.

I am very much pleased with the plans of Cal Smith. I have made his AD-2, AT-6 and many others that he drew. I like his cover designs also—that boy is OK for my money even if he is an Air Force boy ("I'm Navy").

R. Hansen, San Lorenzo, Calif.

. . . Have a new Air Trails plan #1151 that's never been used, would like to trade with someone having a new or used plan #651. My plan includes: Douglas Mailplane; F/F Glutton; Half-A Stunt Chum; ROG-ROW combo sport F/F. The plan I want contains Stits Jr.; Half-A Flying Boat; Douglas AD-2 Navy Carrier event winner. If they don't want to trade I will gladly buy it from them. Thank you.

*Jim Minor, 4530 23rd Ave. So.,
St. Petersburg, Fla.*

Precedent for Pack Plane . . . This letter is in regard to the Fairchild XC-120 Pack Plane. Unless I am mistaken you had a similar idea on the cover of your issue of either the July or August Air Trails in 1948.

Dean Wray, Dayton, Ohio

• AT's "pack plane" was presented before word came of the Fairchild project.

Navy's Color . . . Could you please tell me the regulation Navy color? I'm building an F6F Hellcat, and am sort of stumped on its color.

Bill Hess, North Olmsted, Ohio

• Regulation Navy color for aircraft is dark blue.

Fairey Jr. Lightplane . . . In your article "The Ultra Lights of England" there was a picture of the Fairey Jr. plane which is designed for home building by amateurs. Could you supply me with information as to where I could obtain further details?

Jack Bowyer, Iola, Kans.

• We suggest that you write to Avions Fairey, S.A., Gosselies Charleroi, Belgium.

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BURIED IN THIS AD

are most of the new items. Sometimes there isn't time or space to include them. But, if available, we have it.

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Ohlsson AA	.85	—
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Powermist Spitfire	—	1.60
Powermist Infant TD	1.00	—
Ranger Glo	.90	—
Testors 39	.75	—
Dynaglo	.85	—
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Ranger & Infant	.90	—
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Supersonic 1000	1.00	—
Red Devil	.65	1.15
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Pouring Spout For pint cans..	.10
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5"-3, 5½"-4; 3, 4, 6p; 7"-3, 4, 6	.15
8", 9", 10" in 4, 6, 8 pitch	.25
11", 12" in 6, 8 pitch	.35
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Scamper Plastic 5½" 3p., 6" 4p. .25; 9" 6p., .45 10" 10p., 11" 8 p., .65
Super Spl. 8", 9", 10" in 4, 6 or 8 p. .... .20
Veco 6" 3p, 4p, 7" 4p, 5p, 8" 5p, 6p, 9" 6p., 7p. (6"—25¢; 7" & 8"—30¢ 9"—35¢)
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#3—2¼x1⅝x1 #12—¾x1x⅝
#15—2¼x1⅛x¾
Froom: 1¼x1½ or 2 hor. or ver. .50
1¼x1⅝x2 Sq. .... .80
1⅝x ⅝x2¾ Wedge .... .80
1⅝x1x2¾ ½-Rnd Stunt .80
Berkeley: AA—.50; A—.75
B—.75; C—.85; D—.85
Pylon Plastic: Small .75, Medium .95, Large 1.25
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Champion V, V2, V3, VR1, VR2	.50
McCoy Hot Point	.65
Ohlsson Glo (V, V2 or AA)	.65
O.K. Glo-plug (V2 or V3)	.59
K&B V2, V3 .65; Everglo	.75

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2¾" 1.00
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3½" 1.50

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We'd Like You to Meet . . .

Ray Matthews . . . One of the sparkplugs of the Oklahoma City group who did most of the preliminary testing at the start of PAA-Load flying, Ray has been busy at it ever since. He was the first (and probably the only) modeler to fly valuable cargo across an International boundary line. These and other pioneer flights were made with Ray's best-known design, the Crowbar. Other prize-winning designs have been his Fubar and Fugan, a hand-launched glider. Started at a contest held in Dallas in 1929; it was in connection with a visit from Lindbergh. Now an Air Carrier Maintenance Agent with the C.A.A., he served 5 years in the Air Forces. Resides in O.C. with wife Frances, Ray III who is 6, Joe, 4, and Johnny, 2. Has Pilot's license. Serving as chairman of AMA Contest Board for second year in row.

Claude McCullough . . . A 10c kit of the Wedell-Williams racer from the "5 & 10" started Claude on his model way in 1930. Has had many of his designs published; his Blazer design is his favorite. His controversial "What's Wrong With Pylons?", published in Air Trails in 1946, is his favorite article. Has been very successful at state and regional meets, but says he has the worst case of "Nationalitis" on record. He's done all the dumb ones—needle valve twiddling, hand-in-prop, graveyard launching, rudder tab twisting. Says he "retired" from F/F contest flying after Dallas last year. Now concentrating on R/C, since he believes most satisfactory form of crack-up is one you can control. Mac served in the Signal Corps for 3 years, is now a farmer (unmarried). Member Hornet R/C Model Club.

C. O. Wright . . . Everyone knows C.O., and also son Bob, who used to be referred to as "CO_2." C.O. is a master builder with original ideas. He has tried many experimental tricks, and is justly proud of his work with propellers. Started building air-borne structures back in 1912, with kites and hot-air balloons. Then branched into rubber models. Says he was sort of dormant from 1920 to 1932, when son got him back in the game. C.O. is Executive Secretary for the Kansas State Teachers Assoc. Past President of the AMA. He has attended scores of meetings, contests, and just plain bull sessions with model builders in every corner of the U.S. C.O. was in the Motor Transport for 4 years during the Kaiser's war, has been active Legionnaire ever since; also keeps busy in Topeka Aerobats, Rotary, C. of C.

Sal Taibi . . . Here is a flyer who has been in the midst of the "model wars" for many years. He has long been noted for his free flight designs, particularly in the gas-powered category. Such ships as the Brooklyn Dodger, Hornet, Pacer (ah!), Zenith, Zephyr, Winged Yankee and Cadet have won literally hundreds of contests, and some of them are still seen in active competition. Sal has lived in different parts of the country (no need to say where the first model above was designed and flown to fame!) and his designs have had a profound effect wherever he has been located. Now resides in California, where he works as a toolmaker for the U.S. Naval Ordnance Test Station. He was launched on his model building when a friend gave him a kit in 1934. In '39 he held R.O.W. and Cl. A F/F records. Won Class A at '51 Nats.

Willis C. Brown . . . Some modelers gain fame by winning contests, some by their successful designs. The ones least heard from, but probably most important to the hobby are those who devote their energies to organization, so that all the enthusiasts may benefit from our wonderful activity. Willis is one of these; under his "Outstanding Model Achievements" he listed such modeling greats as Hewitt Phillips, Lew Andrews, Air Trails' own Al Lewis and Bill Tyler, and many more. These boys were members of Jr. Aviation League of Boston, sparkplugged by Willis for many years beginning in 1929. Organized a number of other modelplane and glider clubs, mostly in New England. Served as first president of the AMA. Now a Specialist for Aviation Education working for U.S. Office of Education in Washington. Married, has a son who is an electrical engineer, and a married daughter. Son Ralph, who was an outstanding record holding model builder, was killed in action during last war. Willis himself has served in the Signal Corps. Started model building in 1912 with copy of the Curtiss biplane, which won him his first modeling prize. Still extremely active in Club work of all kinds. A radio "ham," he also serves as NAA's Vice President of Air Youth activities in Washington.

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5N7

R/C

Around the modelplane radio-control circuit . . . comment and reports by a leading authority

■ We thought that everything possible had already been said about getting on the new R/C spot at 27.255 mc. Seems not, though! A couple of items have come up that should be aired. Firstly, application must be made to the F.C.C. on an *overprinted* Form 505; they won't accept the regular form 505 for this spot, so if you have sent one in and had no reply, send along correct form at once.

The AMA has gotten up a very comprehensive Bulletin on the new R/C spot giving license dope, general and technical information, with a list of all F.C.C. offices. All model clubs should have a supply of these bulletins to hand to newcomers. (They are free, of course.)

We stated here last month that all crystal makers marked crystals of the third harmonic type only at the actual operating frequency. The mag was hardly out before we heard of one who doesn't! It seems that the Petersen type Z5 crystal that we have recommended has been superseded; this concern now covers our frequency with a Type Z9, which has a different size case and different pin size. It sells for the same price as the old Z5, but is marked with the fundamental frequency — 9085 kc. These crystals have been tested in the circuits shown in the A.T. Annual and in this Column, and found to work very well. Delivery time is given as four to six weeks.

Other concerns which have stated that they can furnish our crystals are: James Knights Co., Sandwich, Ill., type H-173, selling for $7.95, and Standard Piezo Co., Carlisle, Pa., who had given a tentative price of $6.95. The crystal people are currently very rushed with defense and commercial business; we don't know of any concern you can write and get a "rock" by return mail. Most of them can deliver in about a month.

People and Clubs. A new group known as the Beam Riders has been formed in Parkland, Wash.; at the start, there were 10 members, all working on their first R/C jobs. Thomas E. Casto, the secretary, who sent us the word, says that his boys have had some trouble obtaining various R/C components, such as relays and tiny potentiometers.

Most of the R/C advertisers in this magazine can furnish the sensitive relays used in their own sets as well as the tubes. Some of them carry quite a stock of small parts needed by the R/C home builder—Control Research has about the widest variety of these items at present. Then, for radio parts in general, we suggest the large mail order firms such as Allied Radio, Wholesale Radio, Burstein-Applebee, etc. These and many more are located in various parts of the country; addresses may be had from any of the radio mags.

To get back to Tom—he says the club would like to correspond with other groups regarding circuits and troubles. Write him at 1305 S. 118th St., Parkland, Wash.

A long-lost letter from W. J. MacKerracher, 30 Esquina Dr., San Francisco, brought us up to date on the doings of the Mustangs, in the R/C field. They fly at Warm Springs Airport practically every Sunday. This club had always been strictly control line, so they went into radio without any F/F experience. They made it in fine shape, though, and are old R/C vets now. We would like to have an up-to-date report on the Mustangs; what say, W.J.?

We have mentioned in these pages the International Radio Controlled Models Society, a group formed in England some five years ago. This Society concerns itself mainly with the technical side of R/C, and issues bulletins on circuits, systems, commercial items, and so on. We have long felt that there should be such a group in this country, a sort of common meeting ground for the more technically minded R/Cers. We are pleased to learn that the Pacific Radio Control Society (c/o E. L. Rockwood, Box 762, Walnut Creek, Calif.) has been designated as the Headquarters Group of the I.R.C.M.S. in the U. S.

As soon as the Society has attained sufficient size in this country, it is expected that a quarterly bulletin will *(Continued on page 56)*

From Mexico City architect C. Gonzalez de Cosio sends photo of himself with his "overgrown" Robot. Model spans 6 ft., exactly 20% more than original. English escapement. "Marvelous performance."

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air notes

AVIATION TODAY AND TOMORROW

AERO COMMANDER (above) is revamped "newcomer" in twin-engine executive transport field, already proved its success by some 30 orders from various individuals and business concerns. Number two plane has been purchased by Chicago Tribune. Plane accommodates five to six people, has generous luggage allowance, can cruise 190 mph on 36 gallons of fuel per hour. Boasts a range of nearly 1200 miles. Manufactured by Aero Design & Engineering Co. of Oklahoma City.

★ ★ ★

BOEING YB-52 made first flight from Boeing-Seattle Field to Larson AFB, Moses Lake, Wash., flown by Boeing's test pilot Tex Johnson, winner of 1946 Thompson Trophy Race, and Lt. Col. Guy M. Townsend, of Wright-Patterson AFB. . . . WRIGHT TURBO-COMPOUND engine has highest horsepower to displacement ratio of any piston power plant mass produced. Develops 1 hp per cubic inch displacement, is rated at 3500 hp and weighs less than one pound per hp.

★ ★ ★

HANS MULTHOPP, credited with designing the Fock-Wulf TA-183, which is regarded as forerunner of the Russian MiG-15, now employed as aeronautical engineer with Glenn L. Martin Co. . . . FIRST of ten Lockheed Super Constellations ordered by TWA undergoing flight tests for CAA certification at Burbank, Calif. Lockheed has already delivered 14 Super Connies to Eastern Airlines, with 16 more on order. PIASECKI YH-21, 16-place helicopter, ready for delivery to the Air Force. Looks similar to Navy HRP-2 but is considerably larger and powered by 1150 hp Wright engine.

★ ★ ★

CONVAIRLINER 340, 44-passenger twin engine transport granted Type Certificate by CAA. 160 of these planes on order by various airlines. Also on order by AF is Convair C-131, second military version of commercial 240. Planes to be used for air evacuation of wounded with litters and rear-facing seats. JAMES E. WEBB, former Under Secretary of State and long active in NAA, elected to the Board of Directors of McDonnell Aircraft Corp. Webb was a former Marine pilot, still holds reserve commission as Lt. Col.

★ ★ ★

AVERAGING 504 mph, a British Canberra jet bomber was flown from England to Australia establishing an unofficial record for route. Total mileage was 10,900 . . . COL. FRANCIS S. GABRESKI, World War II ace, C.O. of 51st Fighter-Interceptor Group in Korea, and Captains Robert H. Moore and Iven Kincheloe became eighth, ninth and tenth US jet aces, after confirmation of their five-each "kill" of Red China MiGs . . . F-86F, faster, improved version of famous Sabre, delivered to USAF. Plane is powered by GE J47-27 developing 5800 lbs. of thrust, 10% more than in older model. Top speed in excess of 650 mph at sea level.

★ ★ ★

TINY robot mechanism, no larger than a man's fist, that can take electrical impulses "barely strong enough to tickle a mosquito" and turn them into sufficient power to move an object the size of a streetcar, developed by Minneapolis-Honeywell Regulator Co. Will be used to operate controls of super-sonic and high-speed aircraft . . . TEXAS Engineering & Manufacturing Co., Inc., of Dallas, has changed its name officially to Temco Aircraft Corp.

★ ★ ★

9,500,000 gallons of jet fuel per month burned by MiG-15s in North Korea. Around 700 Red jets in operation there, requiring upward of 1500 pilots and 40,000 trained personnel. . . . THREE Americans were honored by the FAI (International Federation of Aeronautics) for their achievements in aviation. The FAI Gold Medal went to Dr. Edward P. Warner, president of the International Civil Aviation Organization, the De La Vaulx medal to Col. Fred J. Ascani, for his F-86 speed record of 635 mph, and the Bleriot medal to Caro Bayley for her altitude flight of 30,203 ft.

★ ★ ★

UNDERWING pressure refueling system allows latest de Havilland Comet jetliner to take on fuel at a rate of one ton of kerosene per minute, approximately 275 gals. . . . SWEDEN's latest jet, the Saab J-29, is match for the F-86 and MiG-15 according to Col. S. Wennerstrom, Swedish Air Attache. . . . NAUTICAL miles and knots to calculate speed and distance will replace statute miles and mph in all flight operations. Complete conversion expected to be accomplished by 1954. To facilitate ready conversion, CAA is developing a plastic ring, reading in knots, which fits outer ring of present air speed indicator.

★ ★ ★

FOUR Douglas DC-7 transports powered by 3500 hp Wright Turbo Compound engines ordered by National Airlines of Miami, Fla. . . . 51st FIGHTER Interceptor Wing in Korea fully converted from Lockheed F-80s to North American F-86s. Total number of F-86s on Korean front 60 days ago approx. 175. . . . SIKORSKY S-55 12 passenger helicopter approved for commercial operations by CAA. Among first civilian users will be Los Angeles Airways in California and Okanagan Air Service, British Columbia, Canada.

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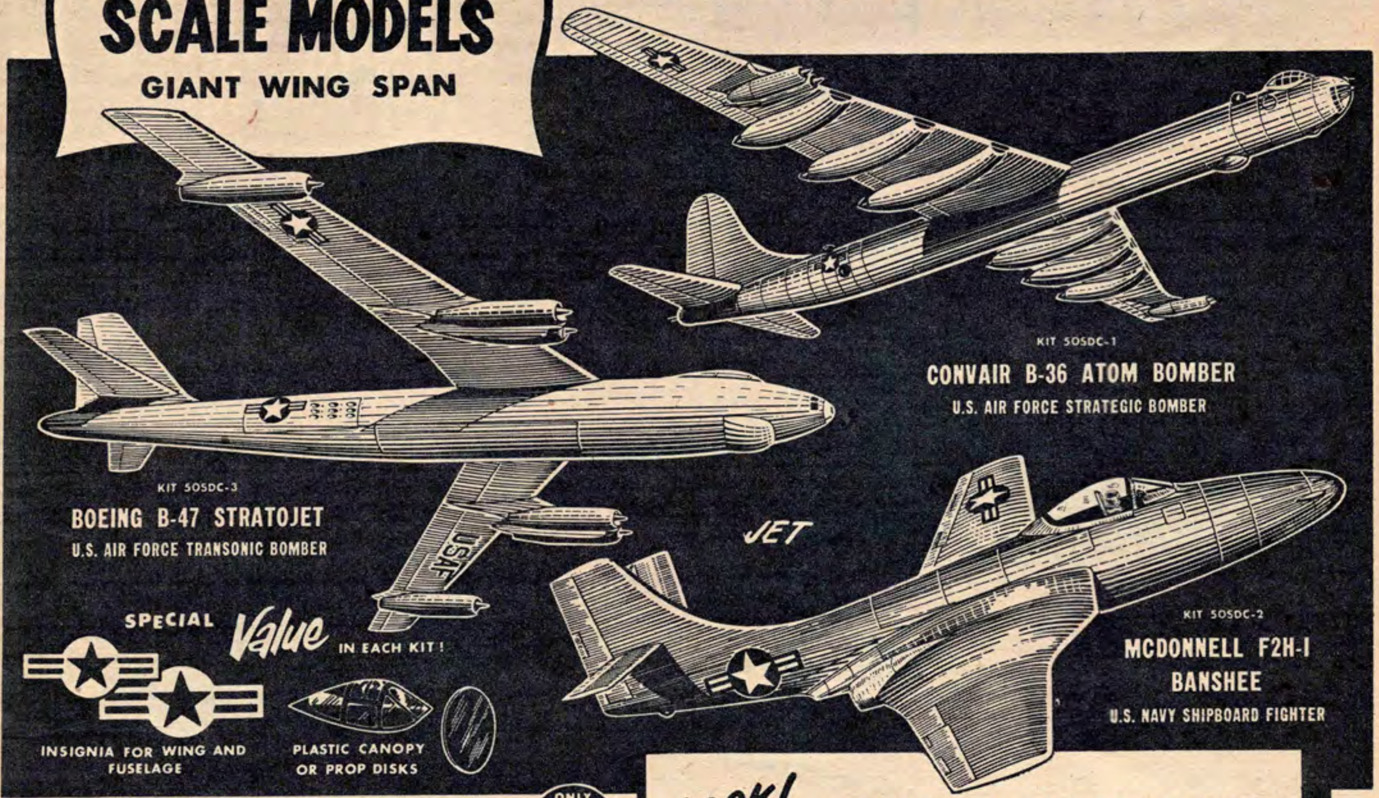

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KIT 505DC-3

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- Boeing B-47 Stratojet
- Douglas AD-1 Skyraider
- No. Am. P-51 Mustang
- Vought F4U-1 Corsair
- Republic P-47 Thunderbolt
- Curtiss P-40 Warhawk
- Lockheed P-38 Lightning
- Lockheed C-69 Constellation
- Boeing B-29 Superfortress
- Northrop F-89 Scorpion
- Grumman F9F Panther
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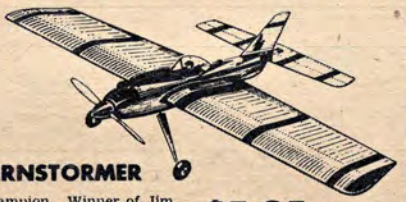
- No. Am. T-28 Trainer
- Convair B-36 Bomber
- Fairchild C-119 Packet

1950 - 1951 NATIONAL STUNT CHAMPION



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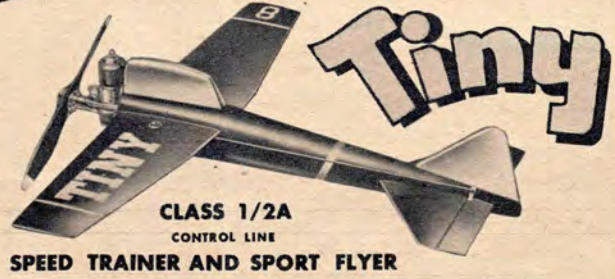

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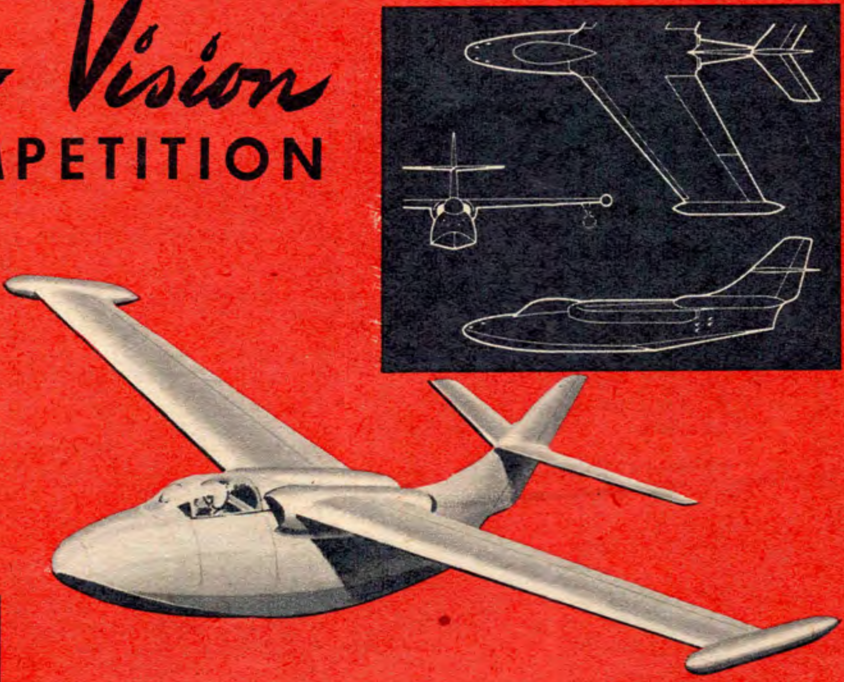
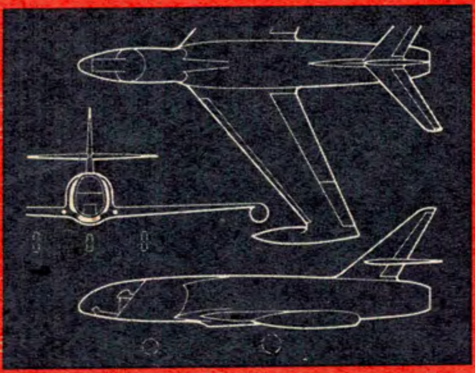
Lou Andrews says: "TINY flies out of the palm of your hand"

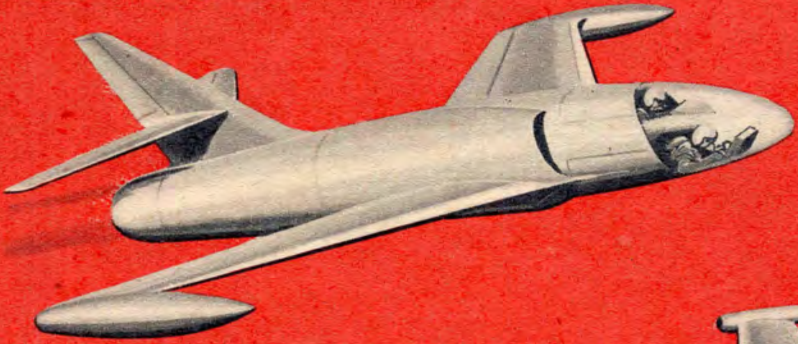
Airmen of Vision
DESIGN COMPETITION

USAF's Lt. William F. Gottwald, stationed in Europe, gets this month's medal for best design. The aircraft is an all-weather jet interceptor or attack, powered by two engines of 5200 lbs. thrust each. Catapulted from naval vessels it lands on water. Permanent tip tanks are lowered to act as stabilizing floats. The plane has four 20-mm cannon. ▶

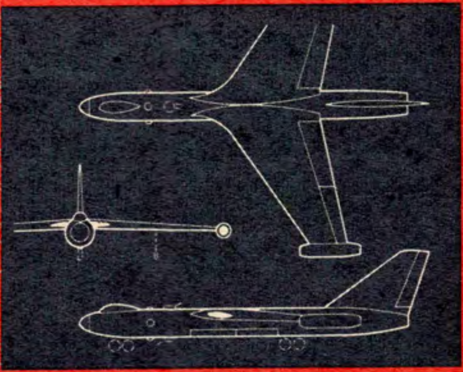


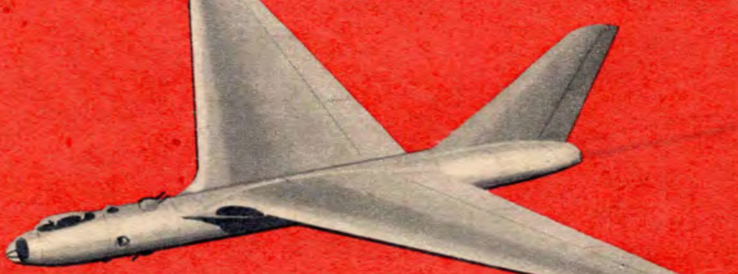
◀ Charles R. Hitz of Bellingham, Wash., came up with a novel idea in two-place all-weather fighters by locating both pilot and radar observer in prone position, one above the other, thus giving the plane's nose an excellent streamline shape. Entire front section is jettisonable capsule, lowered by parachute. Speed 700 mph.





High-sped medium bomber by Bob Ward of Calgary, Canada. Powered by one 10,000 lb. thrust turbojet and two ramjets on wing tips. General design is similar to the German Me. 163 rocket fighter, neither a flying wing nor a tailless design, but one which proved quite successful. Carries crew of four, is armed with six cannon in the nose and two two-gun retractable turrets on top and below fuselage. Wingspan is 100 ft., total length 115 ft. Cabin pressurized for high altitudes. Speed 600 mph. ▶





Air-Trails has opened its columns to those who are interested in presenting plans for "aircraft of the future." Rules governing the competition are as follows: Three-view sketches of the proposed aircraft will be required. These should be not less than 8½ x 11 inches for the entire three-views. Give sketches of the complete airplane in three-quarter front and rear positions. Photos of a model of proposed design may be included. Information of power plant(s) estimated performance, dimensions, and explanations of any usual features are required. Data as to age, occupation or schooling of the entrant will be welcomed by the editors and judges. The designs may be of any type: commercial aircraft, military planes (fighters, bombers, troop transports,) planes for the private flyer and single-engine sporting or racing craft. The entry each month judged the most practical or of the greatest significance will receive an award of $25. Payments of $5 will go to the runners-up. Entries will not be returned and for that reason those participating should keep copies of all material submitted. Mail entries to Airmen of Vision, c/o Air Trails, 304 E. 45th St., New York 17, N. Y. Editors regret that because of large number of entries they cannot enter into correspondence on A. of V.

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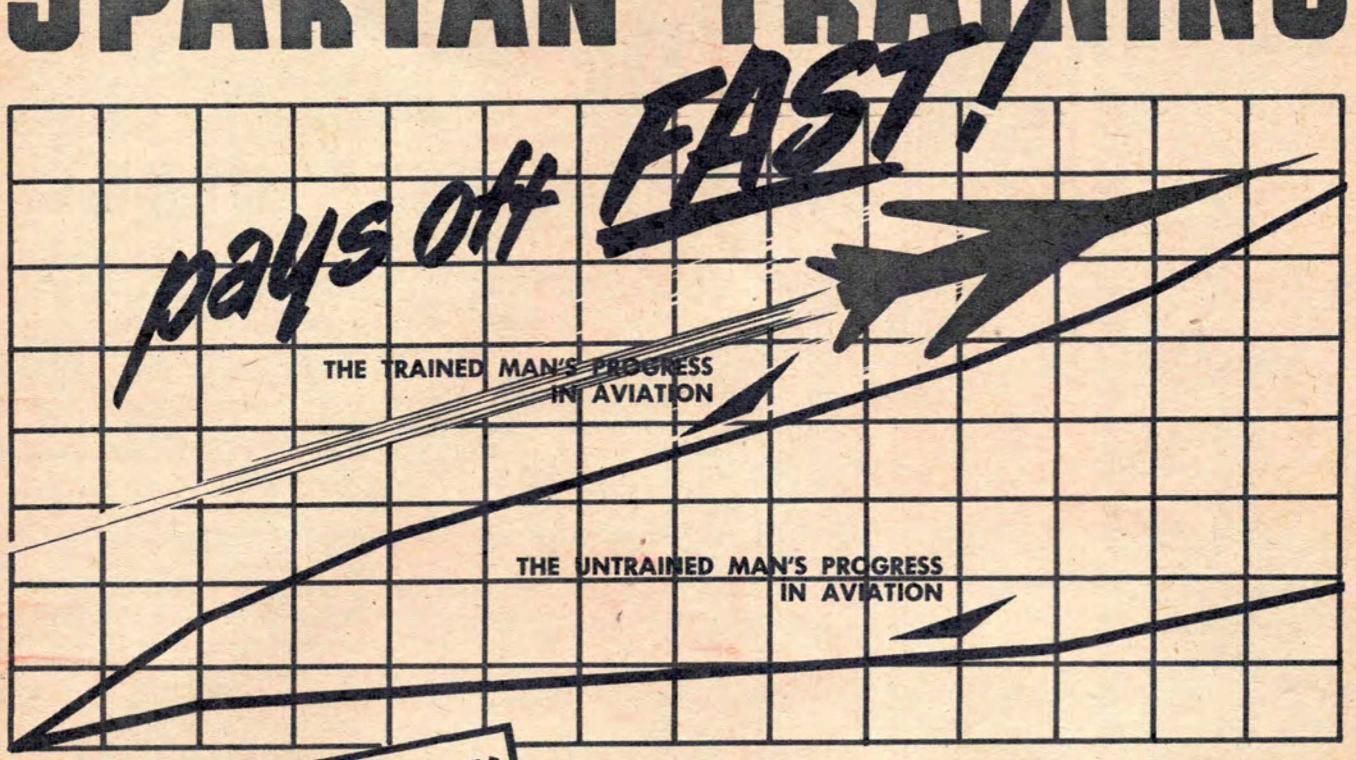
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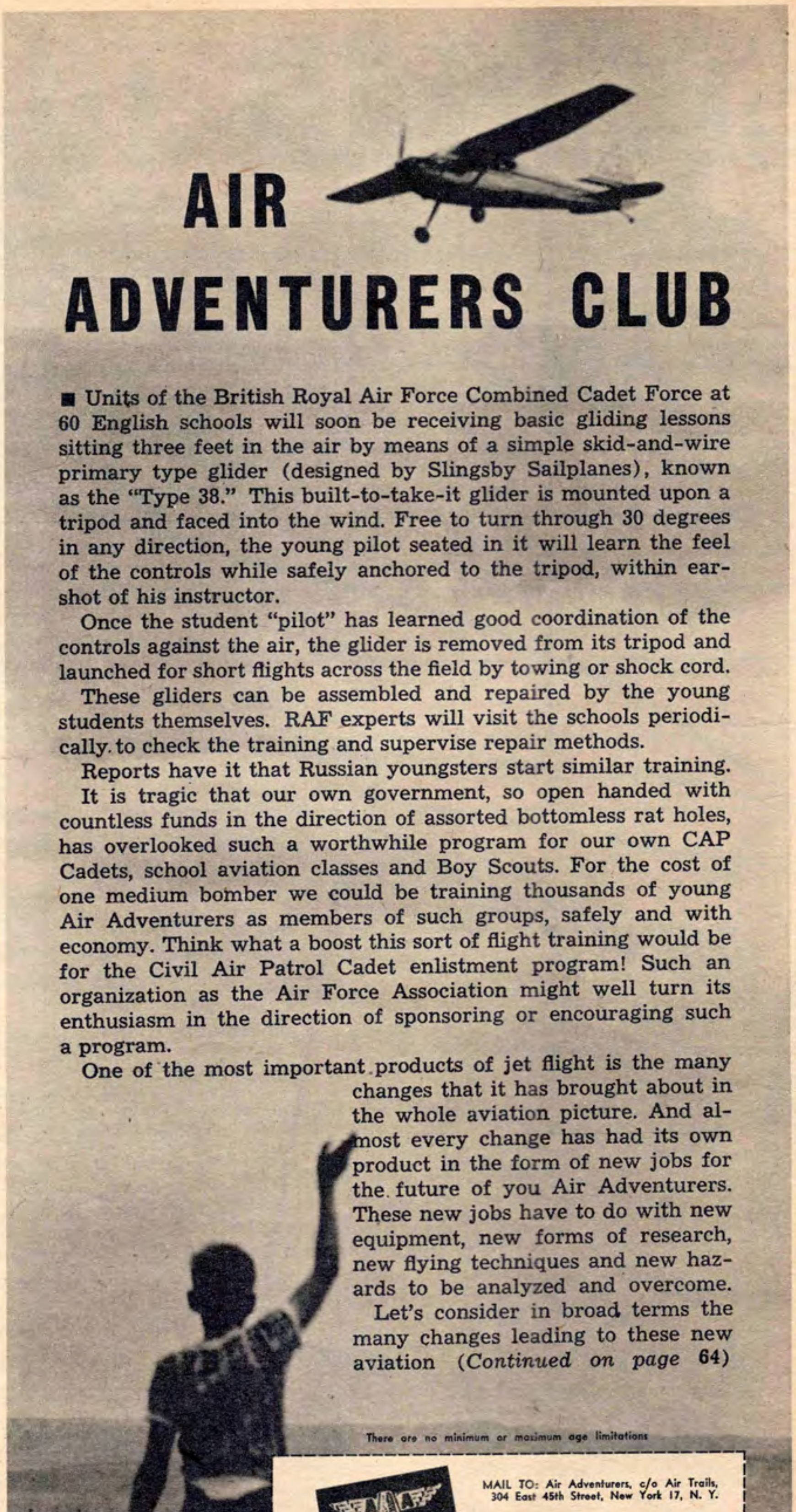

AIR ADVENTURERS CLUB

■ Units of the British Royal Air Force Combined Cadet Force at 60 English schools will soon be receiving basic gliding lessons sitting three feet in the air by means of a simple skid-and-wire primary type glider (designed by Slingsby Sailplanes), known as the "Type 38." This built-to-take-it glider is mounted upon a tripod and faced into the wind. Free to turn through 30 degrees in any direction, the young pilot seated in it will learn the feel of the controls while safely anchored to the tripod, within earshot of his instructor.

Once the student "pilot" has learned good coordination of the controls against the air, the glider is removed from its tripod and launched for short flights across the field by towing or shock cord.

These gliders can be assembled and repaired by the young students themselves. RAF experts will visit the schools periodically. to check the training and supervise repair methods.

Reports have it that Russian youngsters start similar training.

It is tragic that our own government, so open handed with countless funds in the direction of assorted bottomless rat holes, has overlooked such a worthwhile program for our own CAP Cadets, school aviation classes and Boy Scouts. For the cost of one medium bomber we could be training thousands of young Air Adventurers as members of such groups, safely and with economy. Think what a boost this sort of flight training would be for the Civil Air Patrol Cadet enlistment program! Such an organization as the Air Force Association might well turn its enthusiasm in the direction of sponsoring or encouraging such a program.

One of the most important products of jet flight is the many changes that it has brought about in the whole aviation picture. And almost every change has had its own product in the form of new jobs for the future of you Air Adventurers. These new jobs have to do with new equipment, new forms of research, new flying techniques and new hazards to be analyzed and overcome.

Let's consider in broad terms the many changes leading to these new aviation (*Continued on page* 64)

There are no minimum or maximum age limitations

MAIL TO: Air Adventurers, c/o Air Trails,
304 East 45th Street, New York 17, N. Y.

I hereby apply for membership in the Air Adventurers Club and promise to do everything in my power for the advancement of American aviation. I enclose 25c in well wrapped coins for my credentials ☐; 50c for credentials *and pin* ☐ —(indicate which).

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(Age) (Sign here) (AT752)

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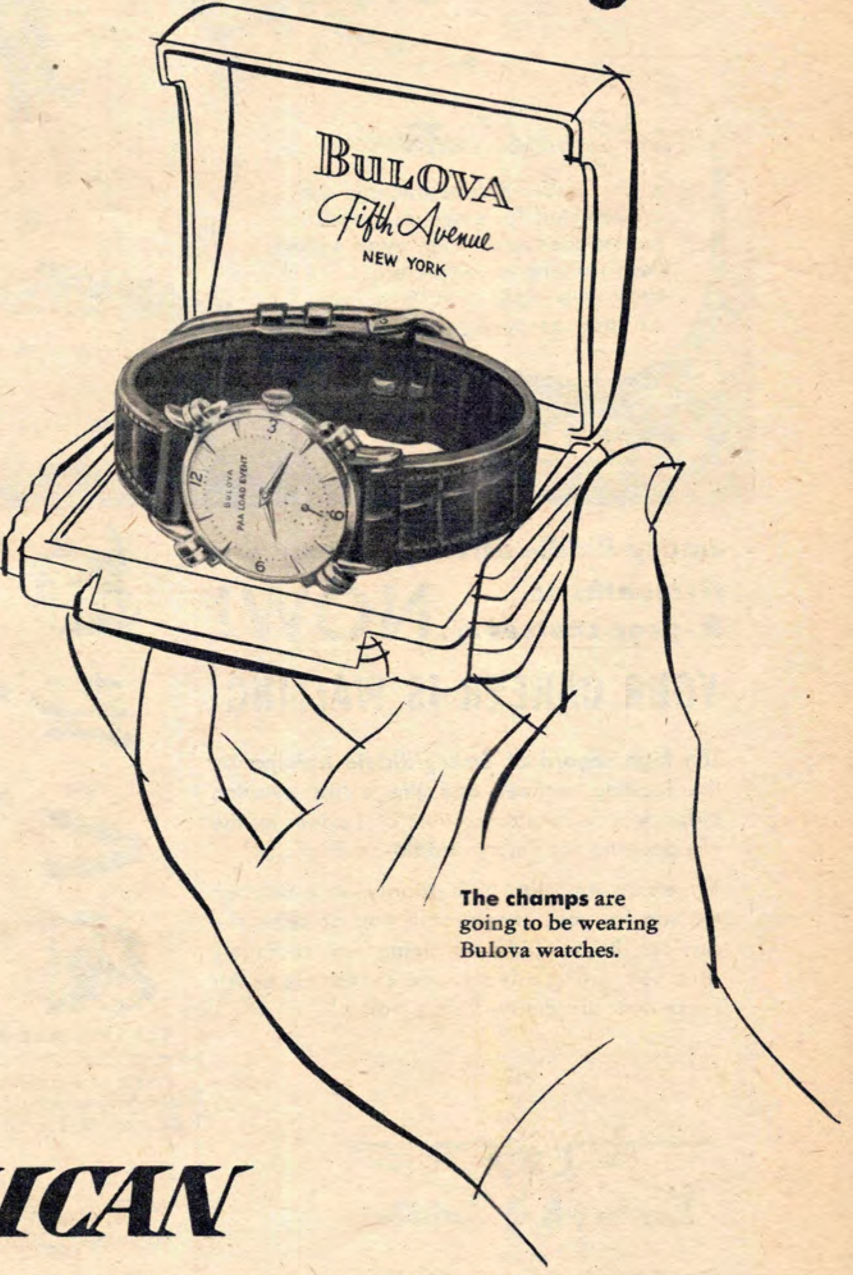

The champs are going to be wearing Bulova watches.

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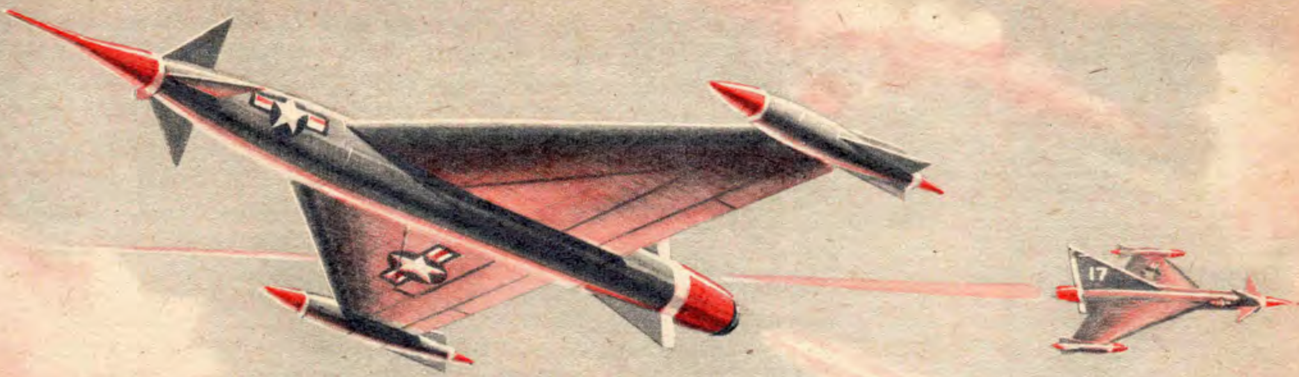
TRAIN IN MIAMI -- AIR CAPITAL OF THE WORLD



The Best Guided Missiles are Morons

An entirely new concept in warfare: a weapon with a single-track brain whose only object is to kill. Its complex nature will present many a pretty problem.

■ The final success of our guided missile program will depend on our ability to create a mechanical moron.

We must build metallic monsters with low-order intelligence, with one-track minds. And we must condition the missile mind with a single impulse—the destruction of the enemy.

It will take that kind of a moron to do the most effective job in missile warfare. The missile must obey—without thinking or reasoning—the most recent command it has been given. It must consider only current data, and not learn by remembered experience. Judgment or objective analysis of the situation is not a factor. It has been told to go out and kill, and that's what it does, even though it's a suicide task.

It may come as somewhat of a shock to think of the guided missile in terms of arrested development. We usually think of all the electronic gadgetry under its hide as "brains" and we tend to credit the missile with intelligence it doesn't have. That kind of thinking is really force of habit. We've seen every new electronic control described as a "brain." We've read about the many euphoniously named computers, those machines that think. And gradually we've been conditioned to the point where our jaws drop in amazement over any machine which performs a simple task any small child could do.

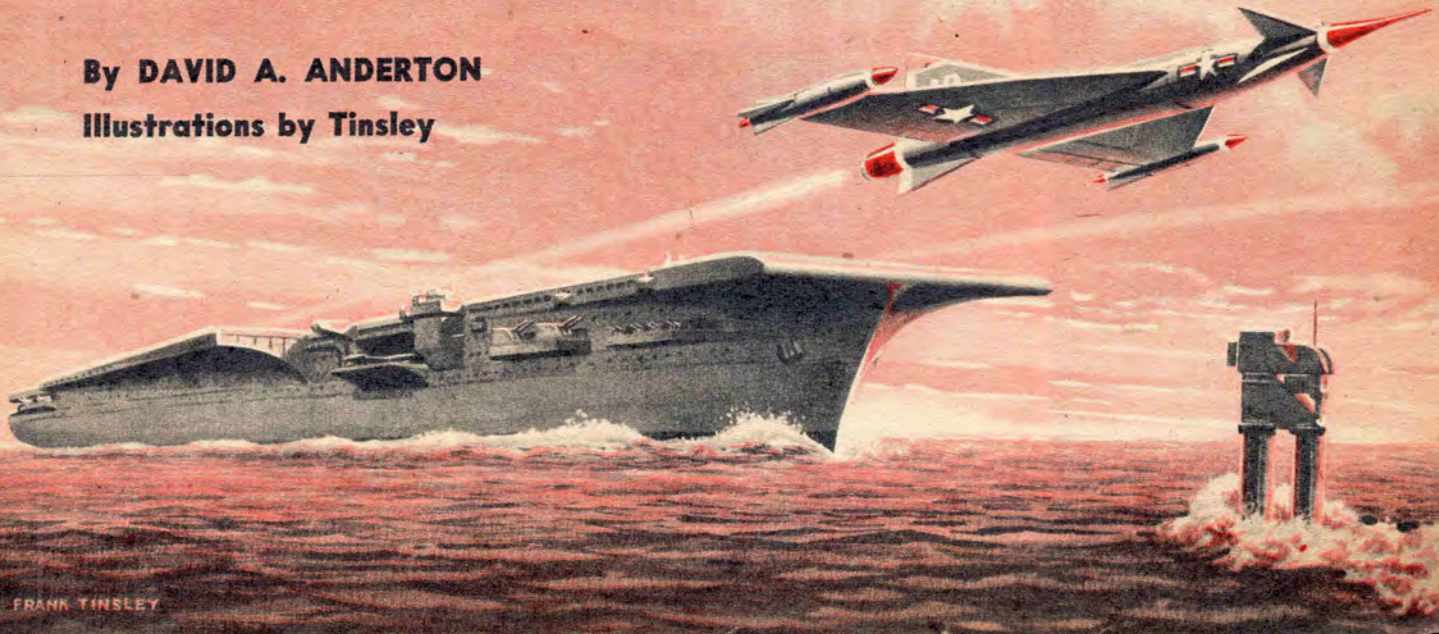
That isn't right, of course. A machine which can count or obey a command may be pretty high up the intelligence scale for a lifeless gadget, but on the human scale, it's pretty low. A child, a dog or a horse can generally duplicate the same motions, also on command.

In building guided missiles, we are fated to be judged by the ability of the brain we produce, and not by the amazing brawn. In a way, our case is parallel to that of Dr. Frankenstein.

You remember the story. Frankenstein was a medical student who created a monster. It was his misfortune to get the brain of a criminal to install in his creature's skull. And it was his fate to be judged by the evil that his creation did. Nobody remembered—or cared—that Frankenstein showed his genius in the synthesizing of a

By DAVID A. ANDERTON

Illustrations by Tinsley



human body. Its ingenuity did not matter.

So it will be with our missile work. We will give our metal children magnificent bodies that will operate oblivious to extremes of heat and cold, pressure and vacuum, gravities and lifts. We will give them motive power derived from the stored energy in chemical fuels, released at temperatures which can melt steel. And everybody will overlook the design genius shown in these phases of the creation. Instead, they'll peer into the cranial cavity, see a collection of black boxes, and murmur, "Isn't that wonderful?"

Well, it is and it isn't. It takes a lot of work to build an idiot. You slave with pencil and slide rule. You build components in the shop, test them in complicated circuitry. You redesign them so they can be produced. And then you get the whole works set up in a missile—and what have you got?

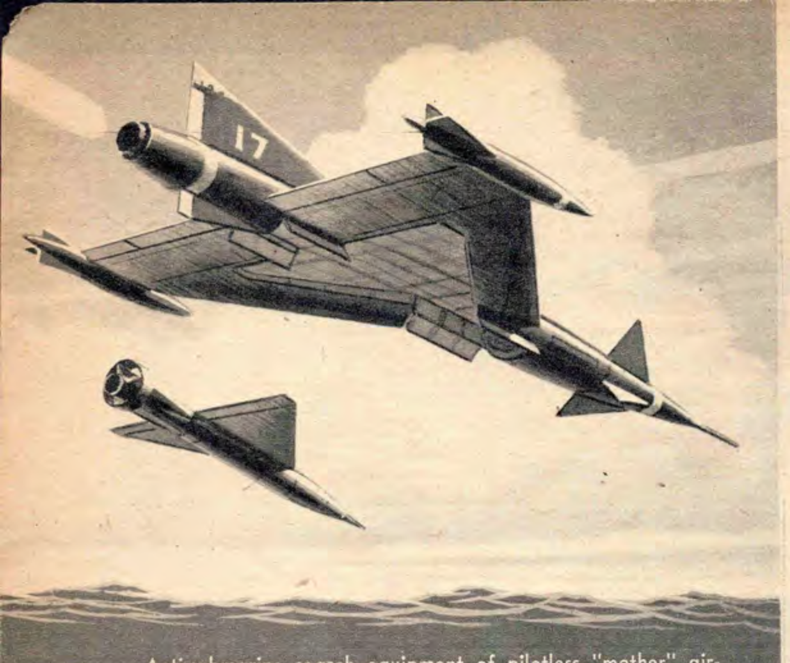
Your mountain of engineering effort has brought forth a mental mouse. You've got a brain which literally can't think. It is incapable of reason. It can only obey what it is told to obey, and then only if that particular act of obedience has been conditioned into the brain.

As an example of what we're talking about, take the case of a long-range missile which operates at normal aircraft altitudes. Nobody has ever told it that there might be an airplane in the way sometime. Instead it was given a ground target to recognize and hit. Even if its radar eyes saw a plane, it might still blindly ram it. The missile was never told to avoid it, and the ability to avoid was not built in.

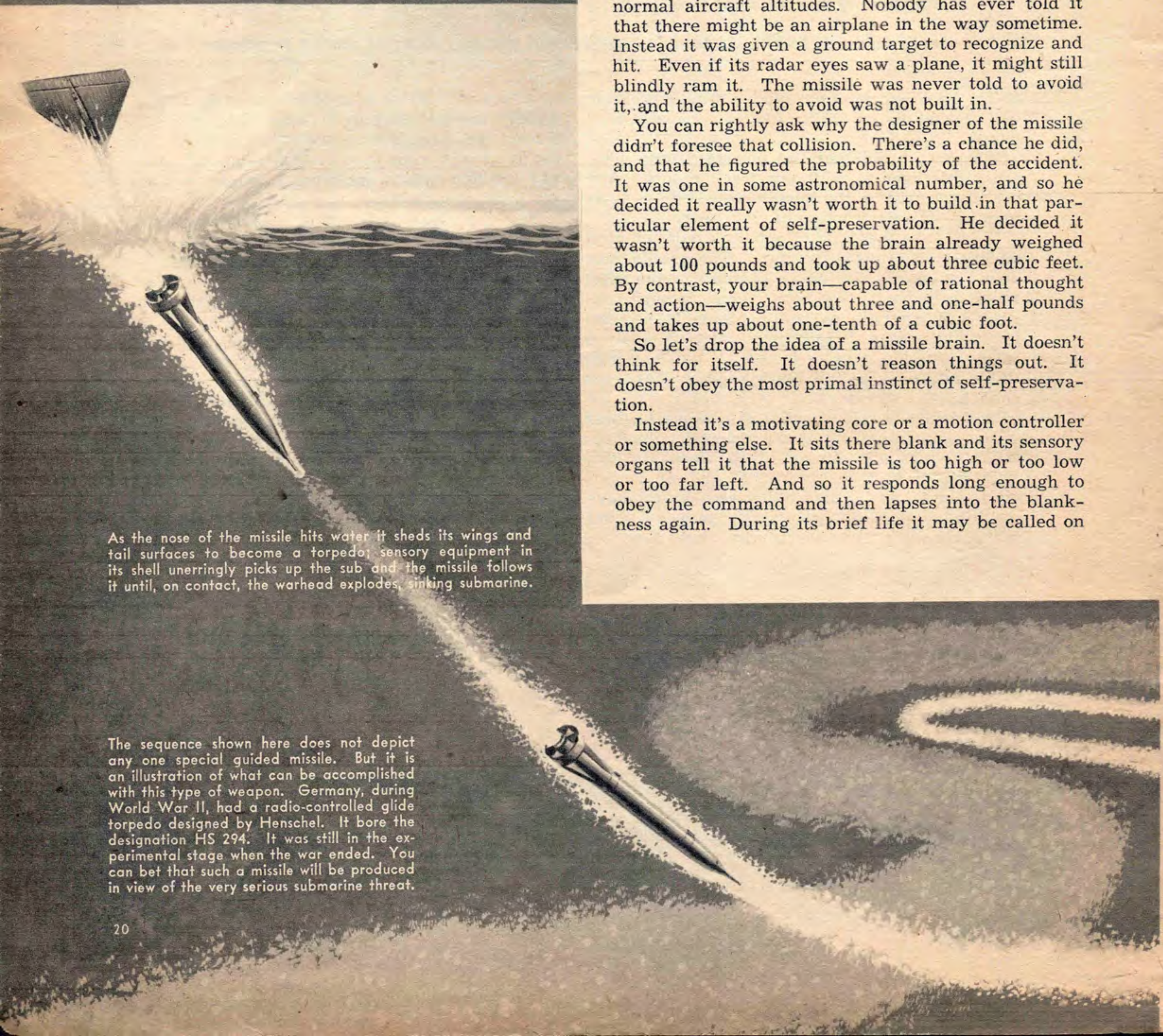
You can rightly ask why the designer of the missile didn't foresee that collision. There's a chance he did, and that he figured the probability of the accident. It was one in some astronomical number, and so he decided it really wasn't worth it to build in that particular element of self-preservation. He decided it wasn't worth it because the brain already weighed about 100 pounds and took up about three cubic feet. By contrast, your brain—capable of rational thought and action—weighs about three and one-half pounds and takes up about one-tenth of a cubic foot.

So let's drop the idea of a missile brain. It doesn't think for itself. It doesn't reason things out. It doesn't obey the most primal instinct of self-preservation.

Instead it's a motivating core or a motion controller or something else. It sits there blank and its sensory organs tell it that the missile is too high or too low or too far left. And so it responds long enough to obey the command and then lapses into the blankness again. During its brief life it may be called on



Anti-submarine search equipment of pilotless "mother" aircraft launched from aircraft carrier detects an undersea foe and guided missile is dropped. Its wings enable it to maintain a shallow glide until time of contact with the water.



As the nose of the missile hits water it sheds its wings and tail surfaces to become a torpedo; sensory equipment in its shell unerringly picks up the sub and the missile follows it until, on contact, the warhead explodes, sinking submarine.

The sequence shown here does not depict any one special guided missile. But it is an illustration of what can be accomplished with this type of weapon. Germany, during World War II, had a radio-controlled glide torpedo designed by Henschel. It bore the designation HS 294. It was still in the experimental stage when the war ended. You can bet that such a missile will be produced in view of the very serious submarine threat.

to open valves or close throttles or kill itself. It does one just as easily as it does the other.

Actually there are varying degrees of intelligence required of these missile "brains." We can start with a simple kind that can only read a clock. Every few seconds, a time impulse causes the brain to do something. Now we can complicate that clockwork with a radio command signal from the ground. We could give signals to cut off the fuel flow, if the missile got out of hand after launching. Or we could watch as it approached an enemy bomber, and detonate it when it was close enough.

Then we can get fancier and fancier, adding task after task. But the more you feed into it, the more chance there is of having something snap. It's easier to overload a smarter brain than a dumber one. The men who work with computing machines know this. They have reported that some of the more-complicated brains, those which have to do more than merely count, show some near-human tendencies. They get off to a slow start after a weekend; they get tired after a long day of work; they even have the electro-mechanical equivalent of a nervous breakdown.

But if you keep the brain simple and give it a minimum of understanding, you never have trouble. And that's another reason for creating a moron—you can't afford to have the thing get a nervous breakdown.

We've talked a lot about this control core of the missile. The reasons are plain, or should be, by now. The missile can only do what it is told to do. The more clearly you give that information, the more explicity everything is spelled out for the dumb brain, the better it does its final job.

But we ought to talk a little about that job, because the duties of a guided missile determine the kind of control you build into it.

First off, the guided missile is getting complicated and expensive. That means you're not going to be building thousands of them for mass raids on enemy targets. You can't afford to. Instead, you are going to concentrate on getting a missile so accurate and so thoroughly proved out in tests that you stand just about 100 percent chance of hitting the target right on the X. And that kind of a missile is going to cost money.

So we've got to use those expensive missiles to do certain particular jobs that we can't do with other weapons or weapon systems at our disposal. Take the anti-submarine problem, for example.

Right now it takes a task force to catch a sub. Current ASW techniques require a carrier with its escort and its planes, the latter split into hunter-killer teams. These aircraft use sonar, depth charges, bombs, rockets and guns, depending on what the sub does. Sometimes they ring in a blimp, or additional surface vessels. The total bill to kill that submarine is a big one.

Suppose instead you cross the submarine torpedo with a pilotless aircraft—then you've got the weapon to sink the sub. You still have to find the sub, and that's a job for underwater detection equipment. And you've got to get the missile to the sub, and that's a job for an aircraft of some kind. Let's try it this way:

To each convoy or naval task force is attached a squadron of pilotless scout aircraft. Each one is equipped to fly long-time patrols. Each craft is loaded with fuel, radar and underwater sound gear and other kinds of special equipment. And in a bomb-bay in its belly nestles a little missile—the hybrid winged torpedo.

These scout craft fly endless patrols over the fleet. They weave a continuous grid over the ships. There are always enough of the scouts in the air to cover the entire task force and the fringe area around it. When one of the scouts begins to run low on fuel, automatic controls tell it to turn back; the craft is landed back on the aircraft carrier with an automatic landing system.

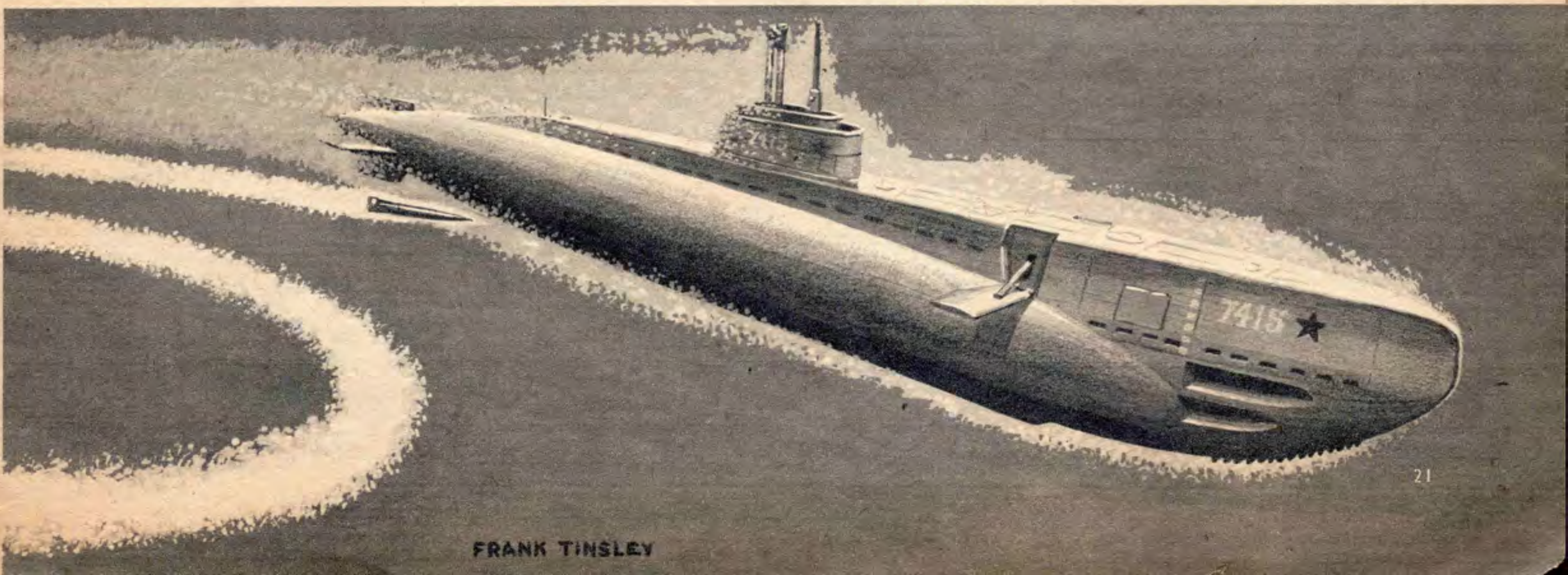
When one of the scouts sights a sub on its own radar, its bomb-bay doors open. The little torpedo slides out and streaks for the water. Midway in its flight there is a sharp roar and a sustained bellow as its rocket motor is fired by a proximity fuse. The missile picks up speed, accelerating to supersonic velocity just as it hits the water.

The impact shears off its wings. Down through the depths it drives, with rocket motor still firing and thrusting it further through the water at high speed. Then it slams into the sub hull, tears through the blister and penetrates to the inside, to blow itself, sub and crew into a tangled mess of oil and steel and flesh.

That's one kind of a special job that a missile can do. There's another that we might look at now. It stems from the things we learned about bombing during the Second World War. It always seemed that the Germans made very rapid recoveries after bombing raids. Within a few weeks, factories were back in production and schedules suffered only a little.

We learned that factories didn't stay hit.

One of the reasons for that might be the way you build modern factories. You build a rugged foundation of reinforced, poured concrete, dug into the ground and supported well on all sides by the earth. On top of this there are brick or concrete walls, and they are spanned with steel (*Continued on page* 71)



FAMOUS AIR RACES:

The Pulitzer

Specially developed for the race, these little demons were capable of speeds in excess of 250 mph and mainly responsible for U. S. military services' persistent faith in the biplane type pursuit.

By ROGER HUNTINGTON

■ A warm autumn afternoon breeze kicks up dust whirls off the runway paving of the St. Louis Municipal Airport. The date is October 6, 1923, and we're among the 50,000 crowd watching the fourth annual Pulitzer Trophy race.

Suddenly a tiny blue biplane with its bronze-color wings flashing in the sun screams overhead and is lost in the haze over the Mississippi River. The announcement blares from the judges' stand: "Williams, number nine, flying the Navy-Curtiss; average speed for the first lap, two-forty-five point two miles per hour."

Wait a minute! That sounds more like a Thompson Trophy lap speed, yet this is ten years before that time. But such is the way things were in the fabulous Pulitzer races.

When we think of air racing in America, usually we think first of the Thompson. Twenty-five years of aviation history is apt to swallow up and hide the contribution to the development of high-speed aircraft which the old Pulitzer series made. We can say right here that this contest was largely responsible for setting the trend in U.S. pursuit planes toward small, light, moderately powered jobs. And we might also remember that a Pulitzer ship was the last American plane to hold the world absolute speed record prior to World War II!

SPECIFICATIONS ON THE SIX WINNING PULITZER SHIPS:

YEAR	Average Speed	PLANE MODEL	Span Ft.-In.	Length Ft.-In.	Empty Weight, Lbs.	Gross Weight, Lbs.	Wing Area Sq. Ft.	Top Speed
1920	156.5	Army-Verville R-1	27-06	24-07	2490	3230	228	180
1921	176.7	Navy-Curtiss CR-1	22-08	21-01	1740	2170	168	190
1922	205.8	Army-Curtiss R-6	19-00	18-11	1450	1950	138	224
1923	243.7	Navy-Curtiss R2C-1	22-00	19-09	1690	2110	144	255
1924	216.6	Army-Verville R-3	30-07	22-00	1890	2380	146	230
1925	248.9	Army-Curtiss R-9	22-00	20-00	1790	2180	144	264

YEAR	ENGINE MODEL	Piston Displacement Cu. In.	Compression ratio to 1	Racing B.H.P. @ R.P.M.	Dry Weight Lbs.	Fuel
1920	Packard 2025	2025	6.5	640 @ 1900	1130	50-50 gas, benzol
1921	Curtiss CD-12	1145	6.1	405 @ 2000	700	"
1922	Curtiss D-12	1145	5.7	465 @ 2300	670	"
1923	Curtiss D-12A	1210	5.9	507 @ 2300	680	"
1924	Curtiss D-12A	1210	5.9	520 @ 2350	680	"
1925	Curtiss V-1400	1400	5.5	619 @ 2350	660	"

It all started as a result of the great progress shown in the development of aircraft for the world's first air racing series, the Gordon Bennett Cup contest. The Bennett series had been responsible for raising the world air speed record to 126.7 mph by 1913, and the contest was expected to close with France's third successive victory in the first post-war race in 1920. To keep development of high-speed aircraft moving, Wilbur Pulitzer, a wealthy American aviation enthusiast, put up a similar Trophy early in that year and scheduled the first race for a month after the 1920 Bennett. Sure enough, France retired the Bennett Cup permanently in September, 1920, leaving the high-speed airplane in the hands of Mr. Pulitzer, so to speak.

The Pulitzer contest regulations were simple. The competition was open to aircraft of all nations, civilian and military, and the only requirements on the ships were a design load factor, or G-load resistance strength, of at least 6.0 G for monoplanes, 4.0 G for multiplanes, and a calculated landing speed not over 75 mph. In 1923, the load factor requirement was upped to 7.5 G for all types. These rules were to encourage the development of practical pursuit-type designs that would tend to keep America in the lead in military aviation.

Administration of the contest was left in the hands of the Aero Club of America and was to be the feature attraction of the annual International Air Races, held at different air fields about the country. Cash prizes totaling around $10,000 per race were distributed along with the Trophy, provided by the promoter out of gate receipts. The courses used were triangular, preferably partly over water. In order to make the contest speeds eligible for International speed records, all courses except for the first race were laid out 50 kilometres (31.1 miles) to the lap, with the race totaling four or five laps.

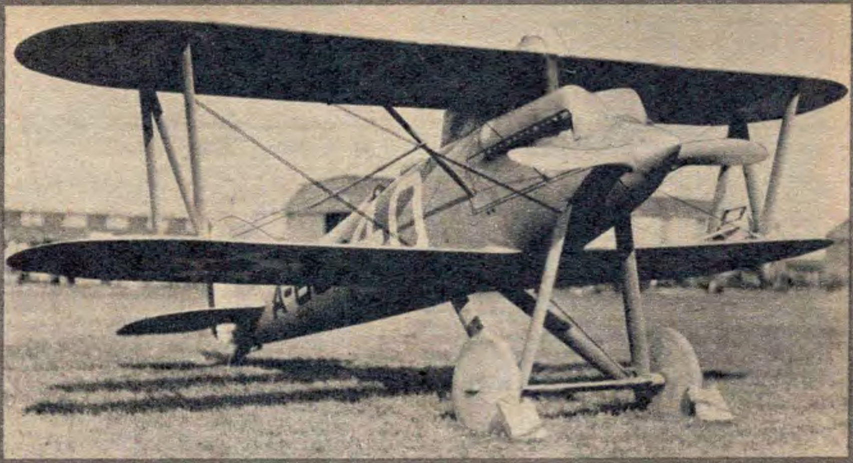
The first contest was held on Thanksgiving Day, 1920, at Mitchel Field, Long Island. Great interest was shown in the race and a large entry list was received, consisting mostly of Army and Navy pursuit ships with several civilian sport types thrown in. There was only one special racing plane in the bunch—the Army-Verville R-1. This was the first pure racing project that had ever been attempted by our military services, and the design followed pretty much the pursuit ships of the day.

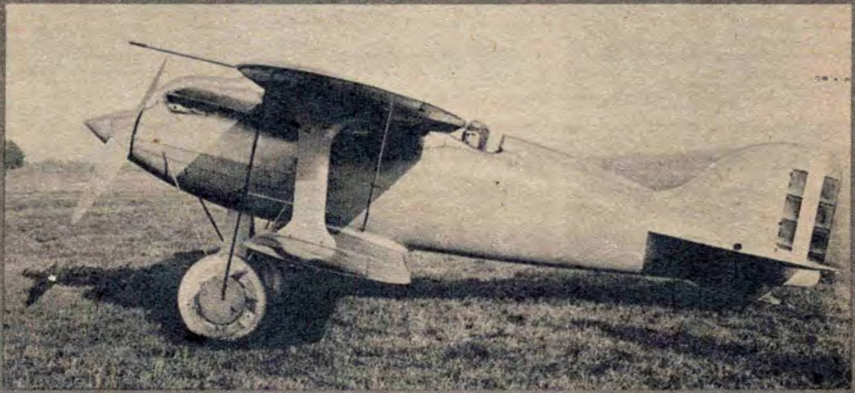
Here was the first crude attempt at streamlining a biplane. Actually, what little drag was eliminated by streamlining was more than offset by the Verville's bulky size—she had well over 200 sq. ft. of wing area and grossed some 3,200 lbs.—so her speed was hardly what was expected from the engine power. This was even with full plywood semi-monocoque construction, with its lightweight characteristics. The engine was another separate racing project by Packard. Using experience gained with the old Liberty engine during W.W.I, they came up with this big model "2025" 12-cylinder, with the then super-high-compression ratio of 6½:1 and developing around 600 hp at 1900 rpm.

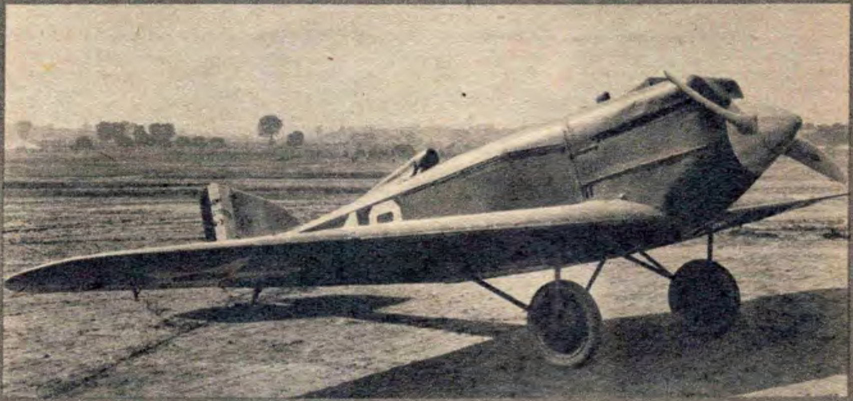
The whole project ran the War Department well over a million bucks! And then the Verville R-1 was never worth the effort because of inadequate cooling capacity with its single Lamblin radiator unit under the fuselage. The new plane was shipped to France in September, 1920, to compete in the Bennett race, but had to come down on the first lap with a boiling engine. For the Pulitzer a month later, the engine cowl was removed in an attempt to allow full-throttle running.

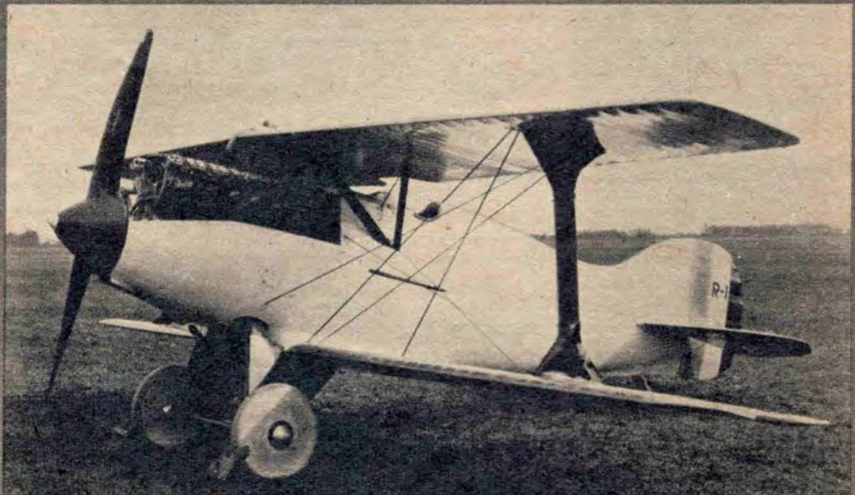
That first Pulitzer race started no less than 35 ships, with the still-untried Verville the decided favorite. In the race, pilot Corliss Moseley found the R-1's cooling with the cowl off a little better and he was able to go the full 116 miles throttled back to 1700 rpm—enough to win at an average of 156.5 mph. But he was pushed all the way by Harold Hartney in a little Thomas-Morse pursuit biplane with a 300-hp Wright engine who finished second at 148.1 mph. This stunning speed display by a small, low-powered job set engineers to thinking about wing area, weight, and horsepower in relation to speed. Maybe brute power *wasn't* the only answer.

Twenty-two other planes finished that first Pulitzer, with several old De Havilland DH-4's placing, the fastest at 124 mph. One Curtiss triplane fighter, with a top speed of 165 mph and rated a good chance to stay with the Verville, had to (*Continued on page* 51)


Navy-Curtiss Type CR. This model was equipped with skin-type radiator in top wing.

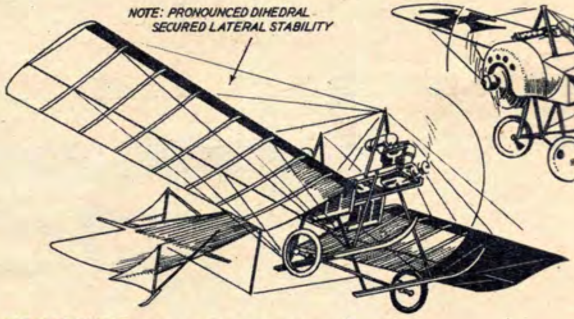

Curtiss R3C-1. First Pulitzer racer to exceed 250 mph. Could climb 5000 ft. a minute.


Army Verville R-3. Despite its low wing and retractable gear, had poor performance.


Verville R-1. Though clean-looking, was too heavy and suffered from cooling problems.

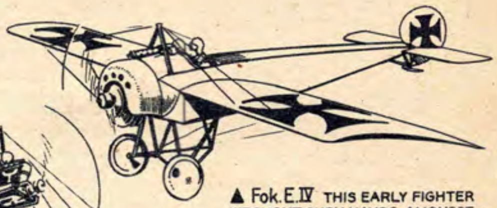
AIR PROGRESS

By DOUGLAS ROLFE

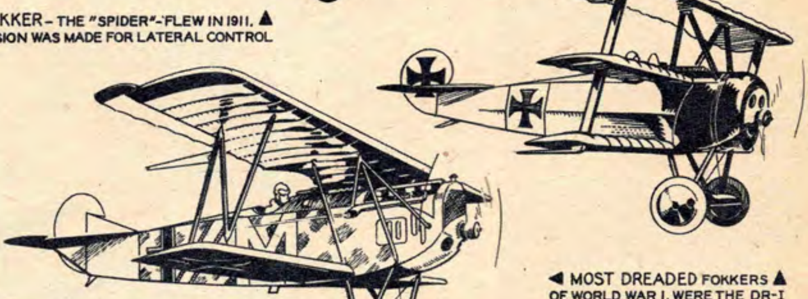


NOTE: PRONOUNCED DIHEDRAL SECURED LATERAL STABILITY

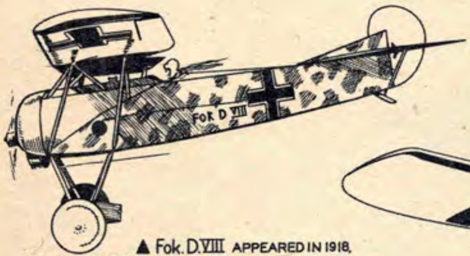
FIRST FOKKER – THE "SPIDER" – FLEW IN 1911. ▲ NO PROVISION WAS MADE FOR LATERAL CONTROL



▲ Fok. E.IV THIS EARLY FIGHTER WROUGHT SUCH HAVOC AMONGST ALLIED AIRMEN IN 1915 THAT IT WAS DUBBED "THE FOKKER SCOURGE"

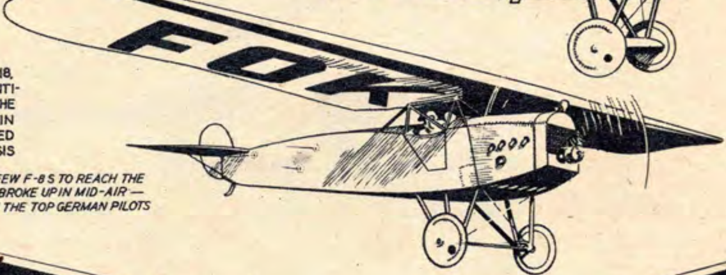


◀ MOST DREADED FOKKERS ▲ OF WORLD WAR I. WERE THE DR-I TRIPLANE AND THE D.VII BIPLANE WHICH INTRODUCED CANTILEVER THICK-SECTION WINGS IN AN AGE OF EXTERNALLY BRACED PLANES

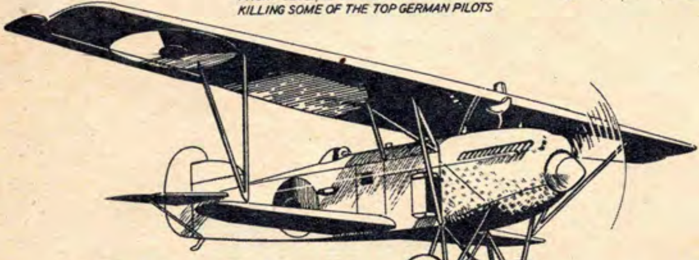


▲ Fok. D.VIII APPEARED IN 1918, WAS LOGICAL DEVELOPMENT OF FOKKER CANTILEVER WING BUT OFFICIAL MEDDLING WITH THE DESIGN RESULTED IN STRUCTURAL FAILURES IN *FLIGHT – DEFECTS WHICH WERE NOT REMEDIED IN TIME FOR IT TO GET ON A PRODUCTION BASIS

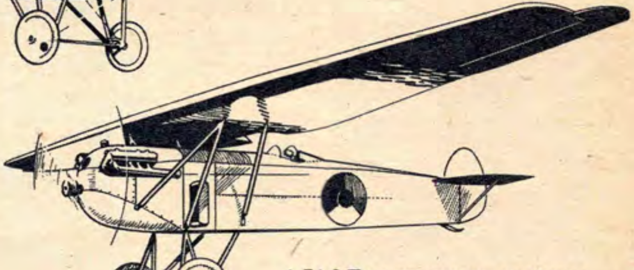
* *NOTE: OF THE FEW F-8 S TO REACH THE FRONT SEVERAL BROKE UP IN MID-AIR — KILLING SOME OF THE TOP GERMAN PILOTS*



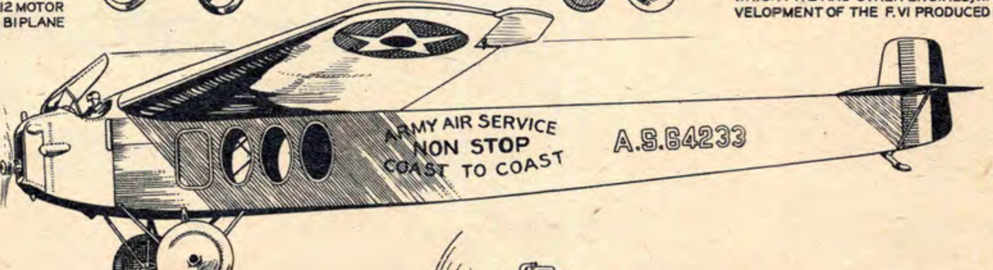
◀ Fok. S.I (U.S. DESIGNATION, TW-4), PRODUCED 1920-22, WAS A 2-SEAT SIDE-BY-SIDE BASIC TRAINER WITH CURTISS OX5 ENG.



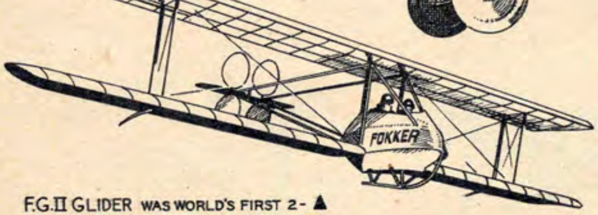
Fok. D.XI (U.S. DESIGNATION, PW-7) THIS ▲ 1922 FIGHTER IS REMINISCENT OF THE CURTISS XPW-8B HAWK – HAD SAME D-12 MOTOR AS HAWK BUT WAS A CANTILEVER BIPLANE



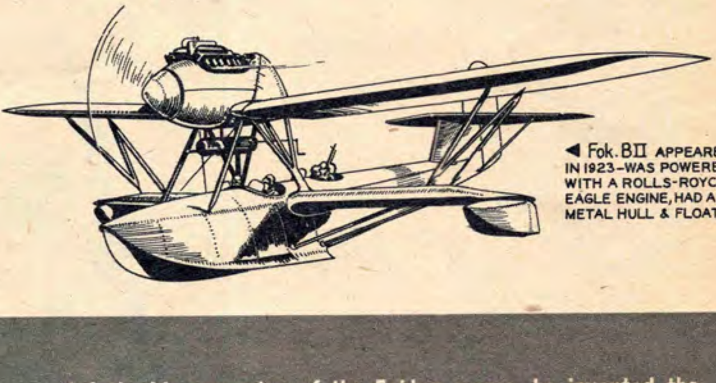
▲ Fok. D.X (U.S. DESIGNATION, PW-5) 335 H.P. WRIGHT H-2 AND OTHER ENGINES, WAS A DEVELOPMENT OF THE F.VI PRODUCED IN 1920



Fok. F.IV (U.S. DESIGNATION, T-2) ONE OF THESE SHIPS PILOTED BY LIEUTS. MACREADY AND KELLY, U.S. A.A.S. MADE 1ST. NON-STOP TRANSCONTINENTAL FLIGHT (FEB. 22-23 1921). ENGINE WAS A 420 H.P. LIBERTY ▶



F.G.II GLIDER WAS WORLD'S FIRST 2-PLACE MOTOR-LESS DESIGN AND HUNG UP SEVERAL ENDURANCE RECORDS (1922-23) ▲

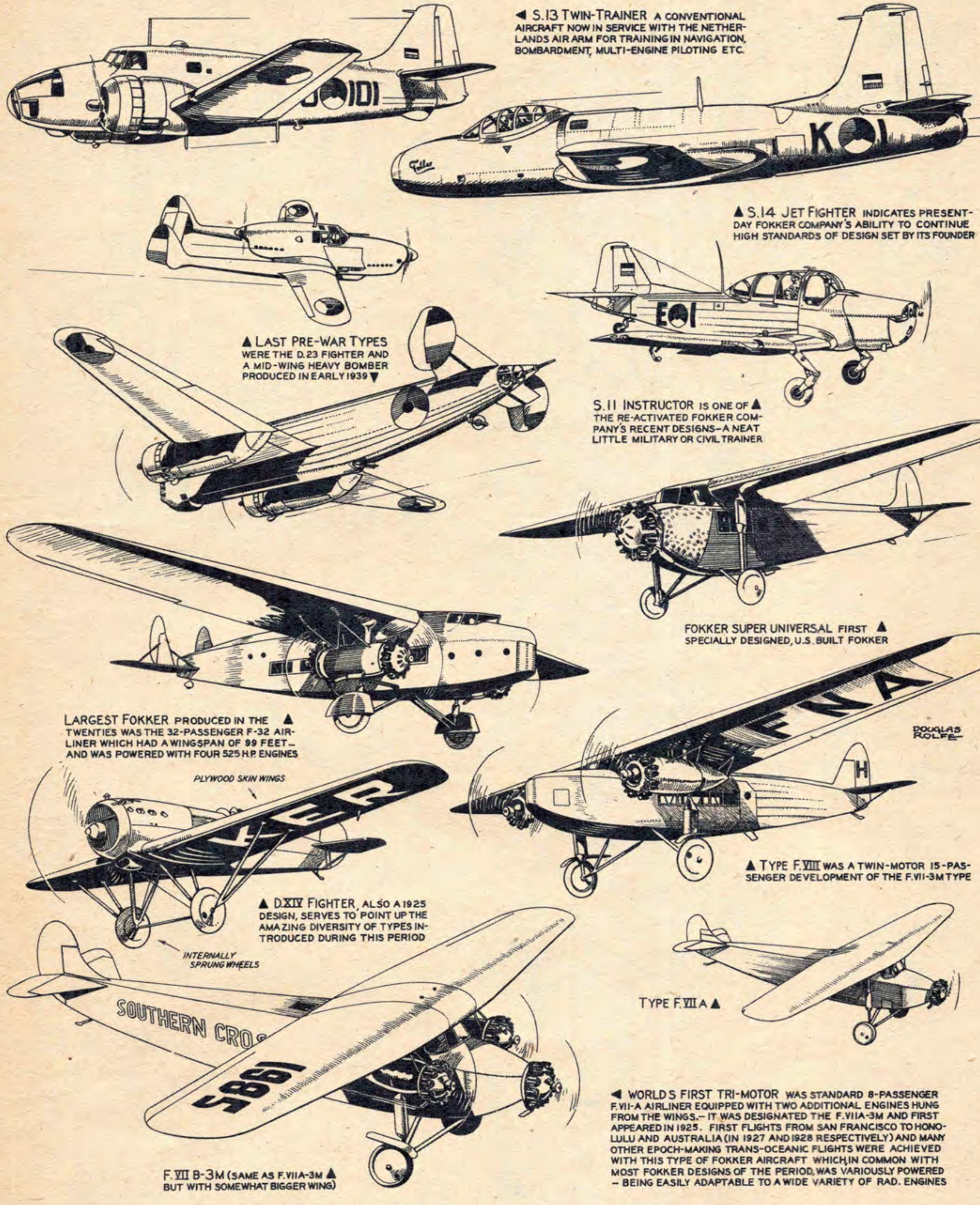


◀ Fok. B.II APPEARED IN 1923 – WAS POWERED WITH A ROLLS-ROYCE EAGLE ENGINE, HAD ALL-METAL HULL & FLOATS

THE FOKKER STORY

One of the most colorful figures ever associated with air progress was the remarkable Dutchman, Anthony Gerard Fokker. Forward-thinking designer, inventor, brilliant airplane and glider pilot, successful manufacturer and indefatigable promoter of the Fokker wares, he invented the synchronized gun gear, introduced welded steel tube airframes and pioneered in cantilever self-stressed wings. His planes were produced in 14 countries; flew on 40 airlines.

Fokker designed, built and learned to fly on his first plane in 1911 at the age of 21. After vainly trying to interest the Dutch and British military authorities in his planes he won



◄ S.13 TWIN-TRAINER A CONVENTIONAL AIRCRAFT NOW IN SERVICE WITH THE NETHERLANDS AIR ARM FOR TRAINING IN NAVIGATION, BOMBARDMENT, MULTI-ENGINE PILOTING ETC.

▲ S.14 JET FIGHTER INDICATES PRESENT-DAY FOKKER COMPANY'S ABILITY TO CONTINUE HIGH STANDARDS OF DESIGN SET BY ITS FOUNDER

▲ LAST PRE-WAR TYPES WERE THE D.23 FIGHTER AND A MID-WING HEAVY BOMBER PRODUCED IN EARLY 1939 ▼

S.11 INSTRUCTOR IS ONE OF ▲ THE RE-ACTIVATED FOKKER COMPANY'S RECENT DESIGNS—A NEAT LITTLE MILITARY OR CIVIL TRAINER

FOKKER SUPER UNIVERSAL FIRST ▲ SPECIALLY DESIGNED, U.S. BUILT FOKKER

LARGEST FOKKER PRODUCED IN THE ▲ TWENTIES WAS THE 32-PASSENGER F-32 AIRLINER WHICH HAD A WINGSPAN OF 99 FEET—AND WAS POWERED WITH FOUR 525 H.P. ENGINES

▲ TYPE F.VIII WAS A TWIN-MOTOR 15-PASSENGER DEVELOPMENT OF THE F.VII-3M TYPE

▲ D.XIV FIGHTER, ALSO A 1925 DESIGN, SERVES TO POINT UP THE AMAZING DIVERSITY OF TYPES INTRODUCED DURING THIS PERIOD

TYPE F.VII A ▲

◄ WORLDS FIRST TRI-MOTOR WAS STANDARD 8-PASSENGER F.VII-A AIRLINER EQUIPPED WITH TWO ADDITIONAL ENGINES HUNG FROM THE WINGS.—IT WAS DESIGNATED THE F.VIIA-3M AND FIRST APPEARED IN 1925. FIRST FLIGHTS FROM SAN FRANCISCO TO HONOLULU AND AUSTRALIA (IN 1927 AND 1928 RESPECTIVELY) AND MANY OTHER EPOCH-MAKING TRANS-OCEANIC FLIGHTS WERE ACHIEVED WITH THIS TYPE OF FOKKER AIRCRAFT WHICH, IN COMMON WITH MOST FOKKER DESIGNS OF THE PERIOD, WAS VARIOUSLY POWERED —BEING EASILY ADAPTABLE TO A WIDE VARIETY OF RAD. ENGINES

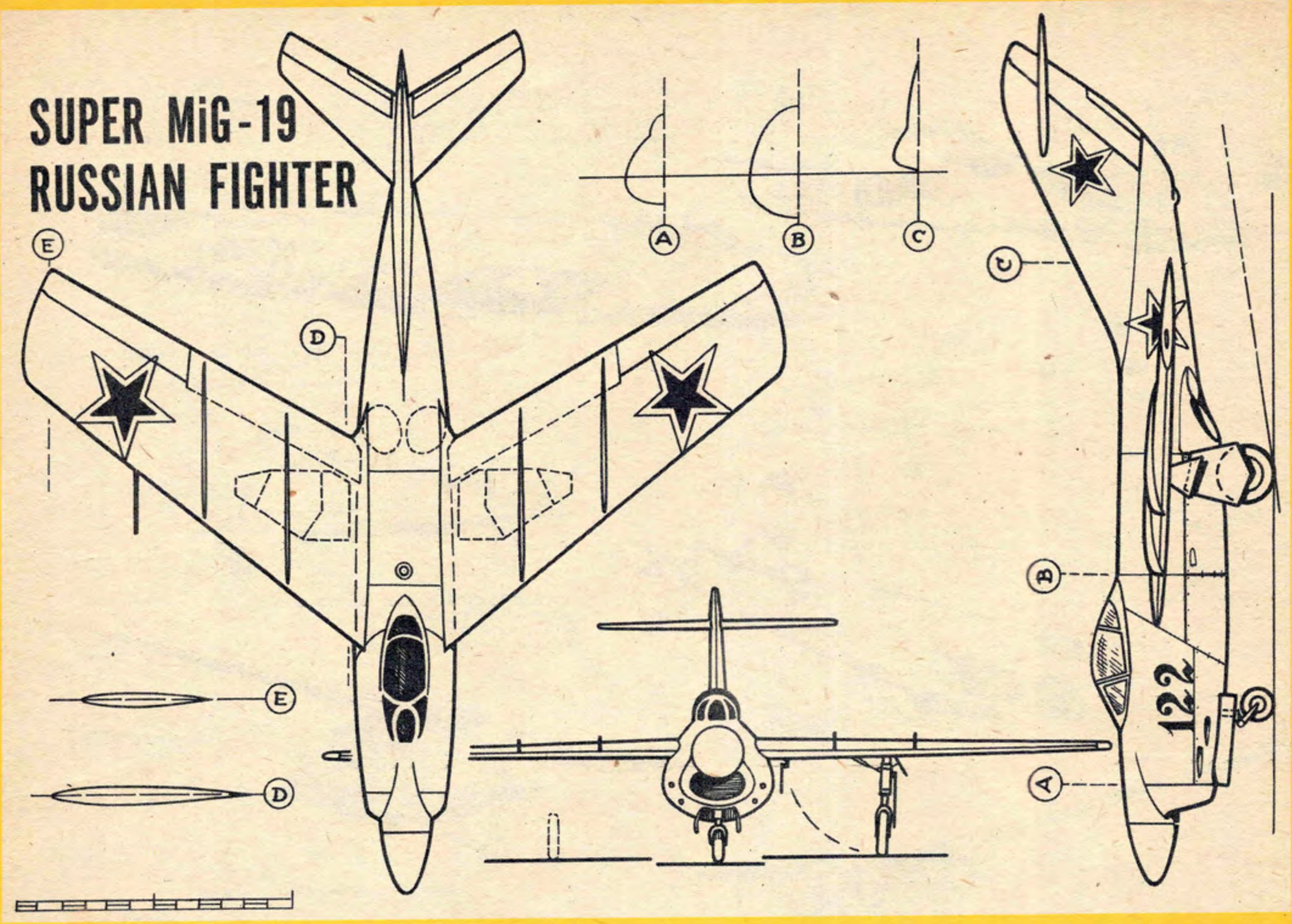
F.VII B-3M (SAME AS F.VIIA-3M ▲ BUT WITH SOMEWHAT BIGGER WING)

first prize at the German military trials of 1913, and with a contract for 10 planes in his pocket set up a modest factory at Schwerin, Germany, the same year.

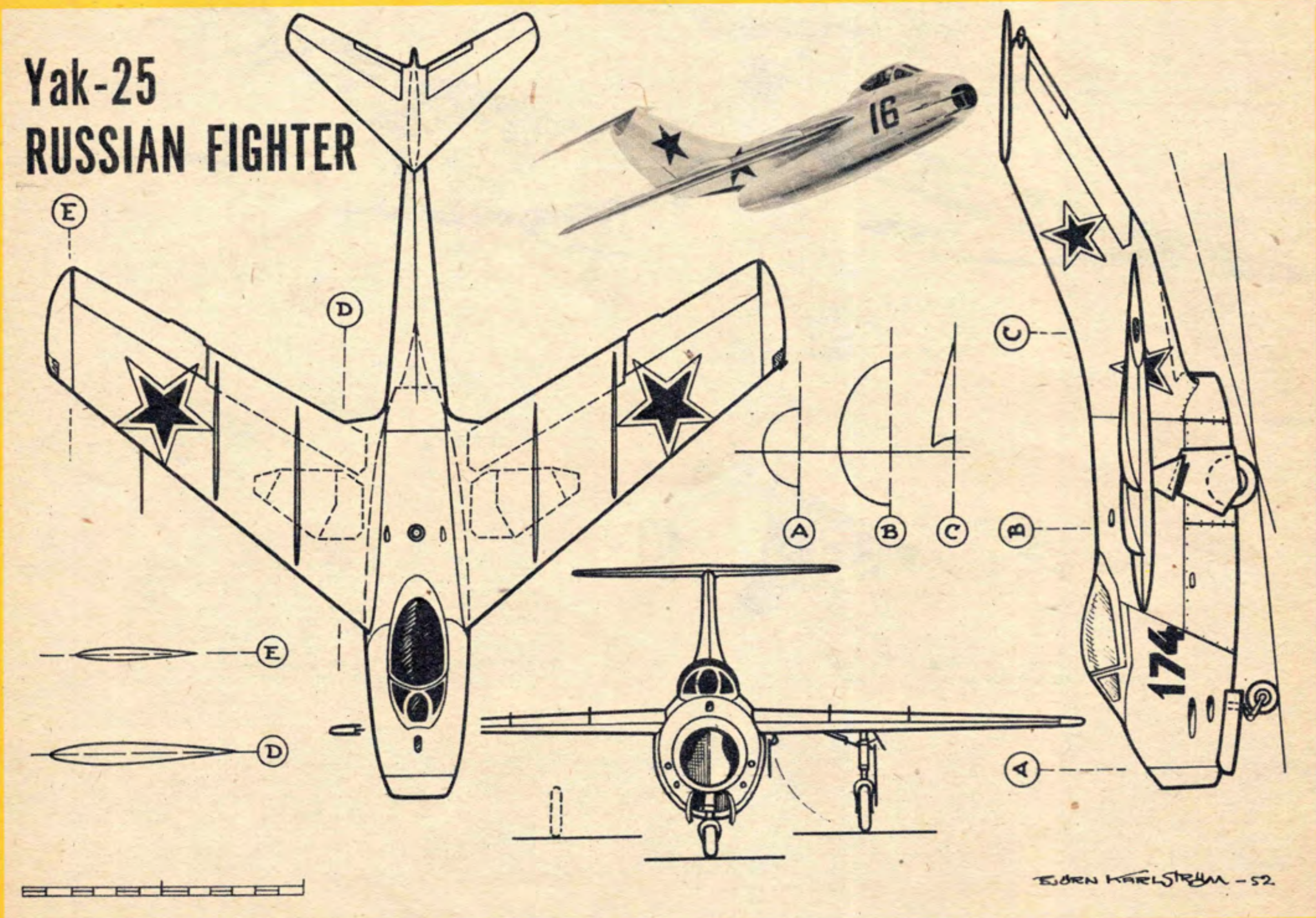
With the defeat of Germany and the harsh terms of the 1918 Armistice threatening his future, Fokker managed to sneak his entire factory equipment and many finished planes over the border into his native Holland, where the existing Fokker Company was immediately established.

In 1927 the U. S. Fokker Company was founded and later turned over to General Motors. The parent company carried on until Holland was overrun by the Nazis in 1940. Now, despite the interim death of its founder, the Fokker Company is once more engaged in designing and building aircraft worthy of the Fokker tradition.

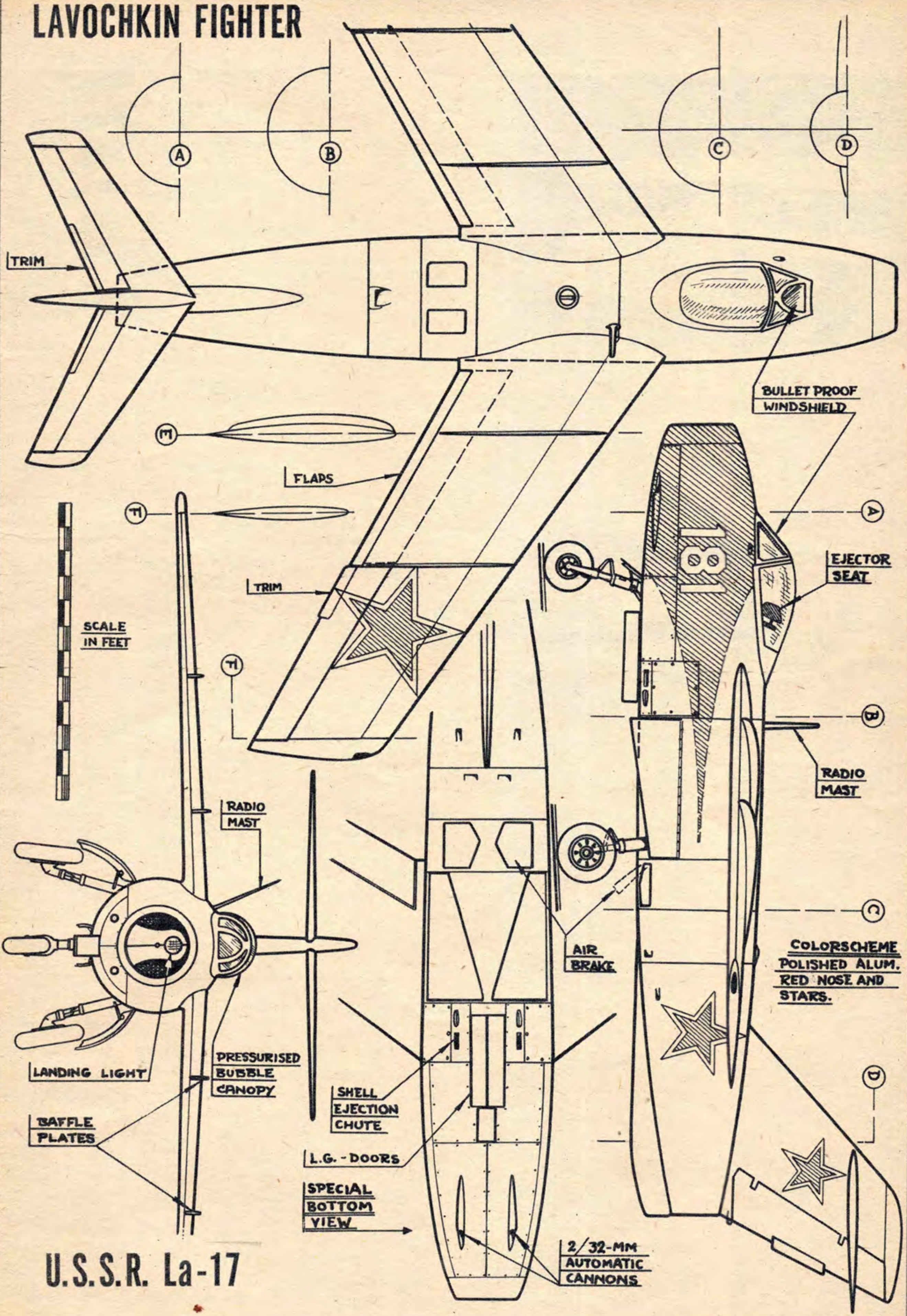
SUPER MiG-19 RUSSIAN FIGHTER


E
D
A
B
C
E
D
122

Yak-25 RUSSIAN FIGHTER

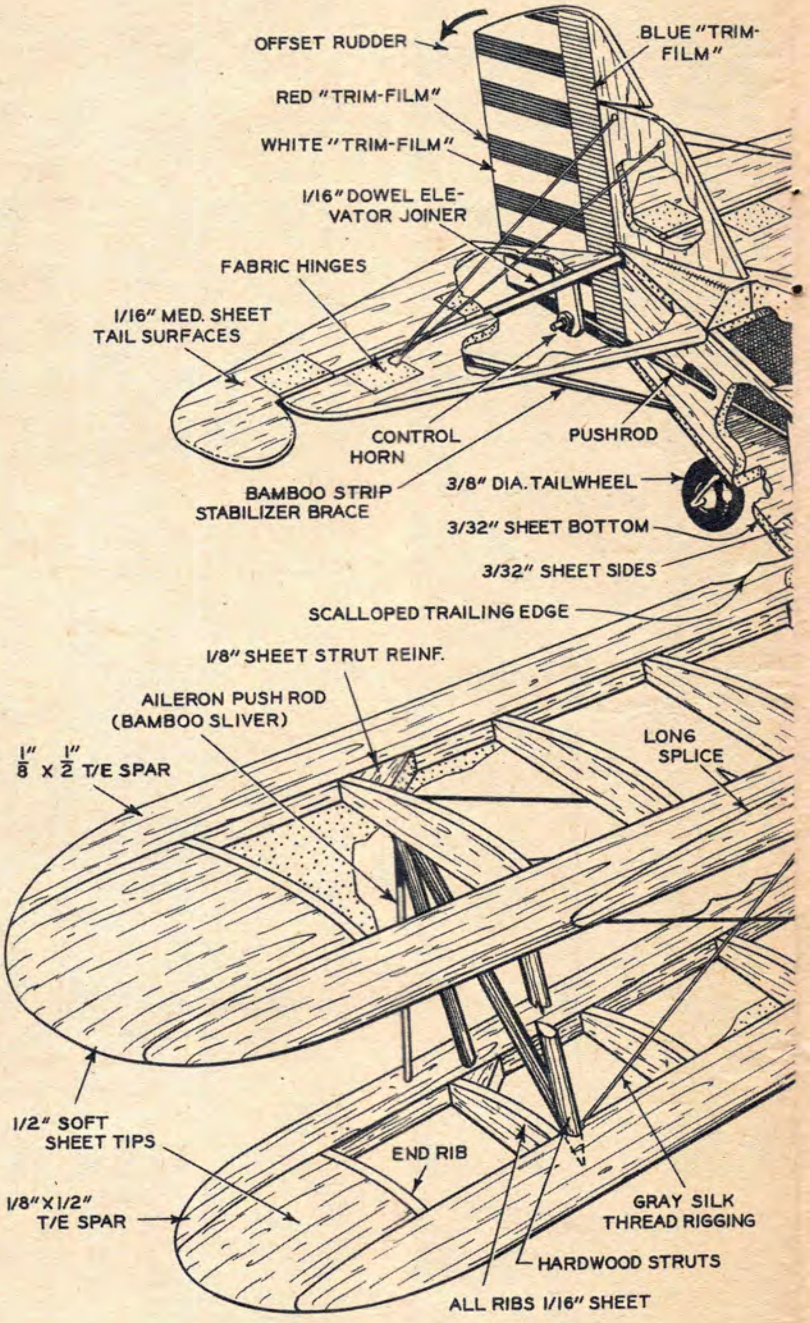

16
E
D
C
A
B
C
B
174
E
D
A
BJORN KARLSTRÖM -52

LAVOCHKIN FIGHTER


A
B
C
D
TRIM
E
FLAPS
F
TRIM
F
SCALE IN FEET
181
BULLET PROOF WINDSHIELD
EJECTOR SEAT
A
B
RADIO MAST
C
D
RADIO MAST
AIR BRAKE
COLORSCHEME POLISHED ALUM. RED NOSE AND STARS.
LANDING LIGHT
PRESSURISED BUBBLE CANOPY
BAFFLE PLATES
SHELL EJECTION CHUTE
L.G. - DOORS
SPECIAL BOTTOM VIEW
2/32-MM AUTOMATIC CANNONS

U.S.S.R. La-17

Scale-man Musciano comes up with a swell half-inch-to-the-foot Falcon for Half-A line fans; double full-size plans for .29 to .51 power

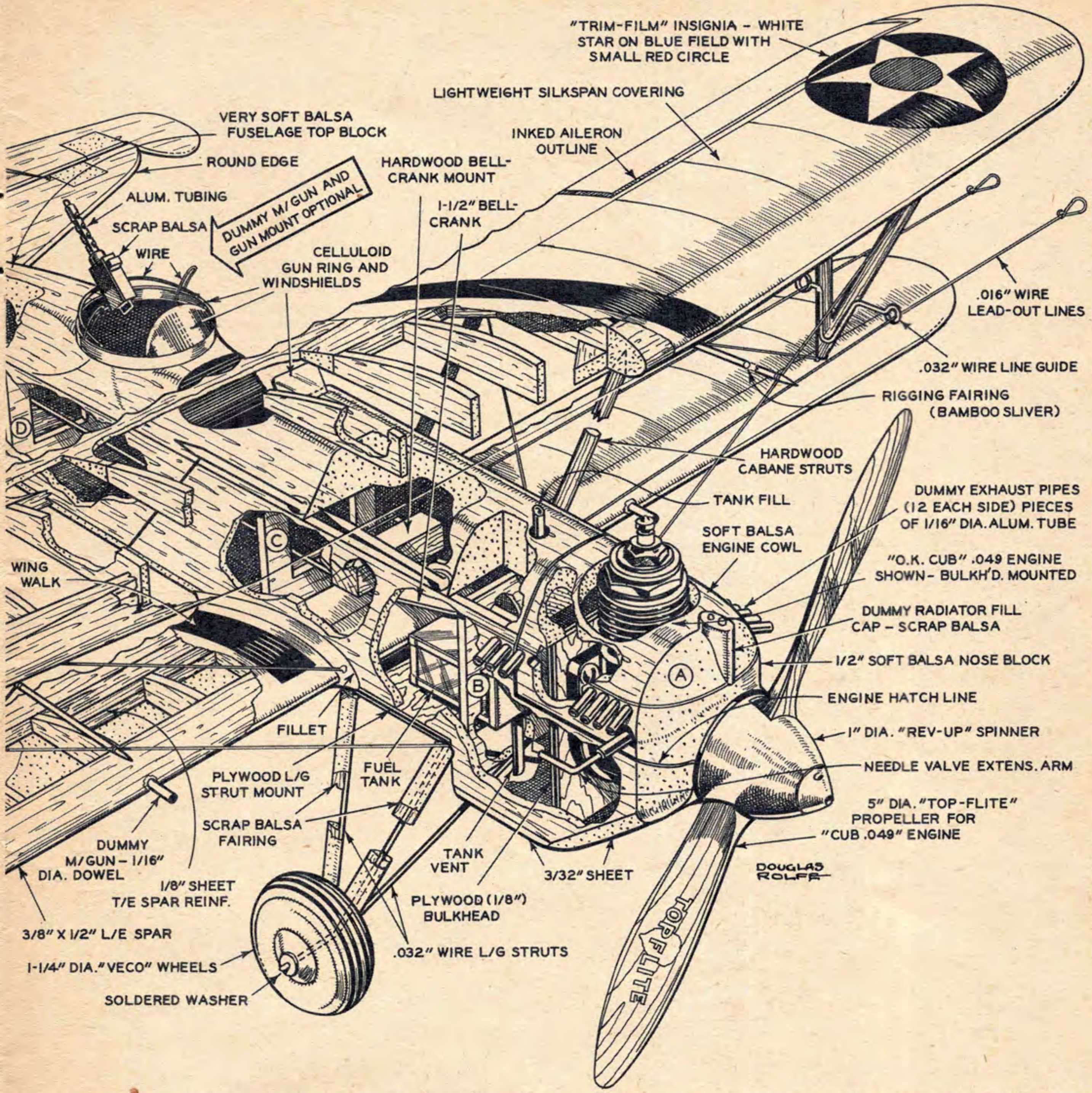

OFFSET RUDDER
BLUE "TRIM-FILM"
RED "TRIM-FILM"
WHITE "TRIM-FILM"
1/16" DOWEL ELEVATOR JOINER
FABRIC HINGES
1/16" MED. SHEET TAIL SURFACES
CONTROL HORN
PUSHROD
BAMBOO STRIP STABILIZER BRACE
3/8" DIA. TAILWHEEL
3/32" SHEET BOTTOM
3/32" SHEET SIDES
SCALLOPED TRAILING EDGE
1/8" SHEET STRUT REINF.
AILERON PUSH ROD (BAMBOO SLIVER)
1/8" X 1/2" T/E SPAR
LONG SPLICE
1/2" SOFT SHEET TIPS
END RIB
1/8"X1/2" T/E SPAR
GRAY SILK THREAD RIGGING
HARDWOOD STRUTS
ALL RIBS 1/16" SHEET

Curtiss Falcon A-3B Attack

By WALTER A. MUSCIANO

■This first cousin to the original Navy Helldiver was procured during 1925-26 as the O-1 and in various modifications up to the O-1F. Seventy-four observation Falcons were built. With slight modifications the A-3 attack version was developed from the "O" series, and 76 Curtiss A-3 Falcons were bought. After an experimental A-3A, the A-3B was evolved and 78 of these ground attack planes were purchased by the Army Air Corps in 1928—a very large order for that time, thus verifying the Army's satisfaction with these planes.

Powered by a Curtiss V-1150-5, 12-cylinder, liquid-cooled engine of 435 hp, the five-gun A-3B attained a top speed of 139 mph with a gross weight of 4458 lbs. Because of added armament and structural modifications, the A-3B was 650 lbs. heavier than the "O" series and


"TRIM-FILM" INSIGNIA - WHITE STAR ON BLUE FIELD WITH SMALL RED CIRCLE
LIGHTWEIGHT SILKSPAN COVERING
VERY SOFT BALSA FUSELAGE TOP BLOCK
INKED AILERON OUTLINE
ROUND EDGE
HARDWOOD BELL-CRANK MOUNT
DUMMY M/GUN AND GUN MOUNT OPTIONAL
ALUM. TUBING
1-1/2" BELL-CRANK
SCRAP BALSA
WIRE
CELLULOID GUN RING AND WINDSHIELDS
.016" WIRE LEAD-OUT LINES
.032" WIRE LINE GUIDE
RIGGING FAIRING (BAMBOO SLIVER)
D
HARDWOOD CABANE STRUTS
TANK FILL
DUMMY EXHAUST PIPES (12 EACH SIDE) PIECES OF 1/16" DIA. ALUM. TUBE
SOFT BALSA ENGINE COWL
C
"O.K. CUB" .049 ENGINE SHOWN - BULKH'D. MOUNTED
WING WALK
DUMMY RADIATOR FILL CAP - SCRAP BALSA
1/2" SOFT BALSA NOSE BLOCK
A
B
ENGINE HATCH LINE
FILLET
1" DIA. "REV-UP" SPINNER
NEEDLE VALVE EXTENS. ARM
PLYWOOD L/G STRUT MOUNT
FUEL TANK
5" DIA. "TOP-FLITE" PROPELLER FOR "CUB .049" ENGINE
SCRAP BALSA FAIRING
DUMMY M/GUN - 1/16" DIA. DOWEL
TANK VENT
3/32" SHEET
DOUGLAS ROLFE
1/8" SHEET T/E SPAR REINF.
PLYWOOD (1/8") BULKHEAD
3/8" X 1/2" L/E SPAR
.032" WIRE L/G STRUTS
TOP FLITE
1-1/4" DIA. "VECO" WHEELS
SOLDERED WASHER

15 miles per hour slower. Rate of climb was 1725 ft. per minute, and service ceiling 23,400 feet. Endurance at full throttle at 15,000 ft. was 3½ hrs. Landing speed was 63 mph. (We thank Mr. G. A. Page of the Curtiss Wright Corp., Airplane Division, for valuable information on the full-scale plane.)

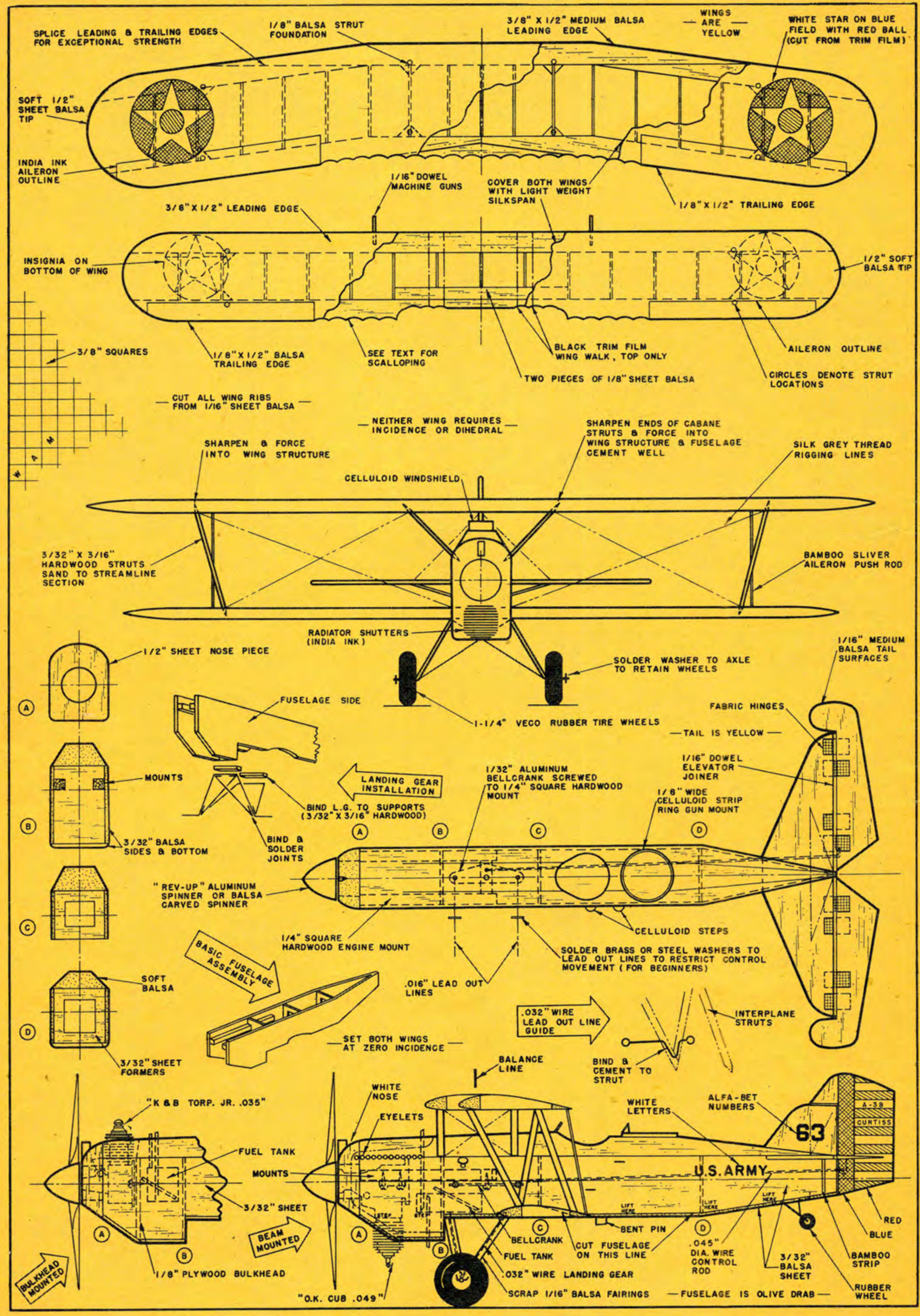
The Falcon is a rugged, easy-to-build Half-A job with excellent performance qualities. Any engine from .035 to .074 cubic inch displacement can be installed in this 74 sq. in. wing area model. These include Cub .039, .049, and .074, K&B .035 and .049, Spitfire, Spitzy, Royal Spitfire .065, and the Wasp. It will be noted that a Cub and a K&B .035 have been illustrated installed in both beam and bulkhead mounting. Either upright or inverted engine mounting can be utilized. The prototype model weighs 5 oz. ready to fly.

Cut fuselage sides and bulkheads from medium sheet balsa. Score with a razor blade and crack for the abrupt taper shown in top view. Join sides at rear; cement bulkheads in place. Add hardwood engine mounts or plywood bulkhead mount. Cement bellcrank mount in place. Attach lead-out lines; screw bellcrank in place; leave it loose enough for bellcrank movement.

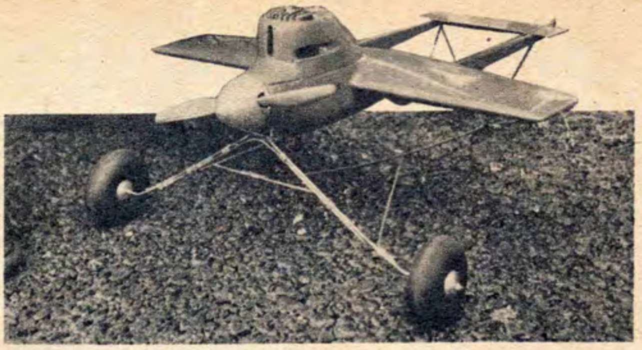
All tail surfaces are cut from sheet balsa; sand smooth. Join two elevator halves by means of dowel. When dry add horn, then hinge elevators to stabilizer.

That gets you off to a good start. Complete building details on AT's full-size plan.

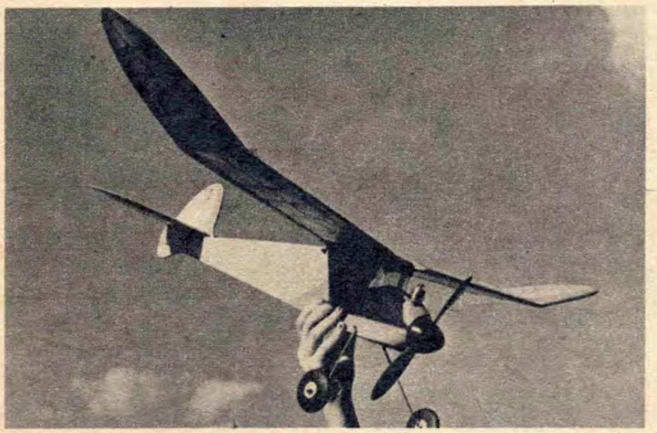
CURTISS FALCON A-3B ATTACK


SPLICE LEADING & TRAILING EDGES FOR EXCEPTIONAL STRENGTH
1/8" BALSA STRUT FOUNDATION
3/8" X 1/2" MEDIUM BALSA LEADING EDGE
— WINGS ARE YELLOW —
WHITE STAR ON BLUE FIELD WITH RED BALL (CUT FROM TRIM FILM)
SOFT 1/2" SHEET BALSA TIP
INDIA INK AILERON OUTLINE
1/16" DOWEL MACHINE GUNS
COVER BOTH WINGS WITH LIGHT WEIGHT SILKSPAN
1/8" X 1/2" TRAILING EDGE
3/8" X 1/2" LEADING EDGE
INSIGNIA ON BOTTOM OF WING
1/2" SOFT BALSA TIP
3/8" SQUARES
1/8" X 1/2" BALSA TRAILING EDGE
SEE TEXT FOR SCALLOPING
BLACK TRIM FILM WING WALK, TOP ONLY
AILERON OUTLINE
TWO PIECES OF 1/8" SHEET BALSA
CIRCLES DENOTE STRUT LOCATIONS
— CUT ALL WING RIBS FROM 1/16" SHEET BALSA —
— NEITHER WING REQUIRES INCIDENCE OR DIHEDRAL —
SHARPEN & FORCE INTO WING STRUCTURE
SHARPEN ENDS OF CABANE STRUTS & FORCE INTO WING STRUCTURE & FUSELAGE CEMENT WELL
SILK GREY THREAD RIGGING LINES
CELLULOID WINDSHIELD
3/32" X 3/16" HARDWOOD STRUTS SAND TO STREAMLINE SECTION
BAMBOO SLIVER AILERON PUSH ROD
RADIATOR SHUTTERS (INDIA INK)
1/2" SHEET NOSE PIECE
SOLDER WASHER TO AXLE TO RETAIN WHEELS
1/16" MEDIUM BALSA TAIL SURFACES
A
FUSELAGE SIDE
1-1/4" VECO RUBBER TIRE WHEELS
FABRIC HINGES
— TAIL IS YELLOW —
MOUNTS
LANDING GEAR INSTALLATION
1/32" ALUMINUM BELLCRANK SCREWED TO 1/4" SQUARE HARDWOOD MOUNT
1/16" DOWEL ELEVATOR JOINER
1/8" WIDE CELLULOID STRIP RING GUN MOUNT
B
BIND L.G. TO SUPPORTS (3/32" X 3/16" HARDWOOD)
A
B
C
D
3/32" BALSA SIDES & BOTTOM
BIND & SOLDER JOINTS
"REV-UP" ALUMINUM SPINNER OR BALSA CARVED SPINNER
C
CELLULOID STEPS
1/4" SQUARE HARDWOOD ENGINE MOUNT
SOLDER BRASS OR STEEL WASHERS TO LEAD OUT LINES TO RESTRICT CONTROL MOVEMENT (FOR BEGINNERS)
BASIC FUSELAGE ASSEMBLY
SOFT BALSA
.016" LEAD OUT LINES
D
.032" WIRE LEAD OUT LINE GUIDE
INTERPLANE STRUTS
— SET BOTH WINGS AT ZERO INCIDENCE —
3/32" SHEET FORMERS
BALANCE LINE
BIND & CEMENT TO STRUT
WHITE NOSE
"K & B TORP. JR. .035"
EYELETS
WHITE LETTERS
ALFA-BET NUMBERS
A-3B
CURTISS
63
FUEL TANK
MOUNTS
U.S. ARMY
3/32" SHEET
LIFT HERE
LIFT HERE
LIFT HERE
STEP
STEP
BENT PIN
RED
BLUE
BEAM MOUNTED
A
B
C
D
BELLCRANK
CUT FUSELAGE ON THIS LINE
.045" DIA. WIRE CONTROL ROD
3/32" BALSA SHEET
BAMBOO STRIP
A
B
1/8" PLYWOOD BULKHEAD
FUEL TANK
.032" WIRE LANDING GEAR
BULKHEAD MOUNTED
"O.K. CUB .049"
SCRAP 1/16" BALSA FAIRINGS
— FUSELAGE IS OLIVE DRAB —
RUBBER WHEEL
W
A
M

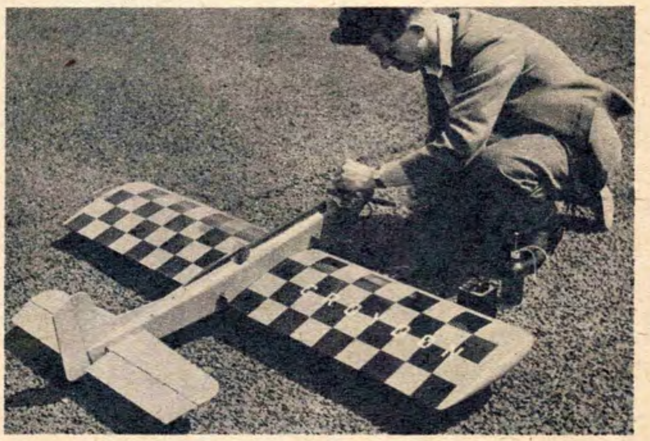
Real Gone Guys... Those Englishmen!



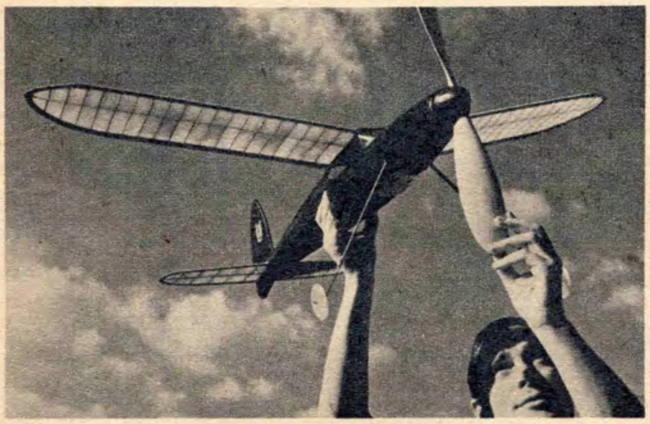
Unusual twin-boom speed job, powered by McCoy .60 engine designed and built by a Mr. Donovan (why won't Britishers give first names?), St. George's Heights MC. Pushrod runs atop port boom.



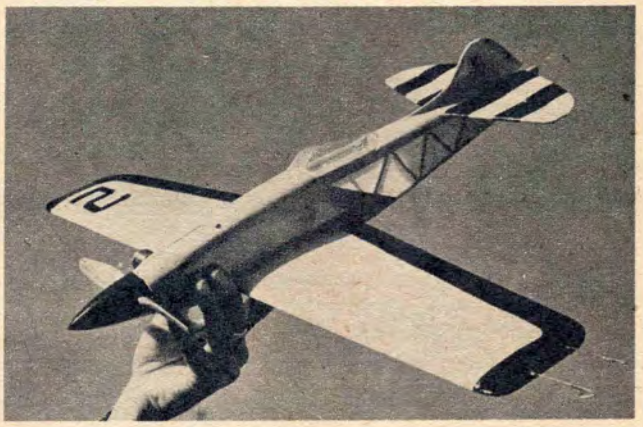
Mighty purty cabin free flighter built by R. A. Adams of London (who took these photos). Power supplied by Mills 1.3 cc diesel engine. Wing l.e. notched back above cabin. Clean construction.



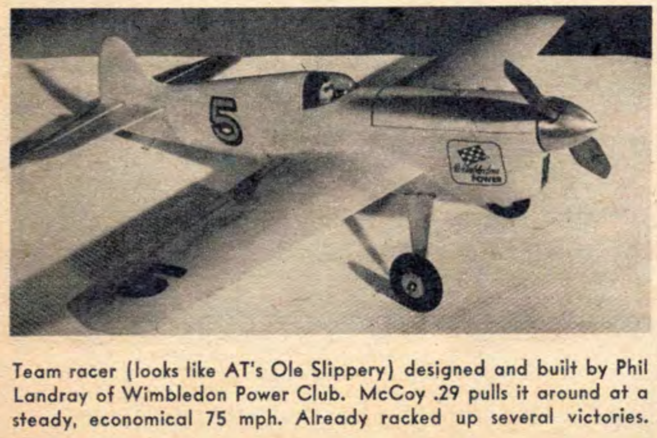
They build some nice stunt jobs, too. Here Mr. ? ? Arnold of Croydon Club starts up the Atwood which provides beaucoup oomph for orange and black stunter. Bracing wire between stab and rudder.



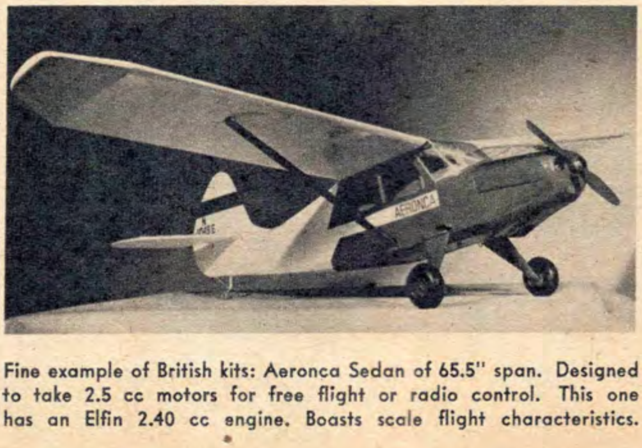
The "Aristocrat" is a Wakefield built to the old formula. Spans 36 in. with realistic cabin. Fourteen yards of black rubber provides the power. Multi-stringer fuselage, undercamber ribs typically British.



Another design by photog Adams which does all stunts in the book; the manner in which it flies inverted leaves him clammy. Yellow and black, boasts Mills diesel. Interesting type of fuselage construction.

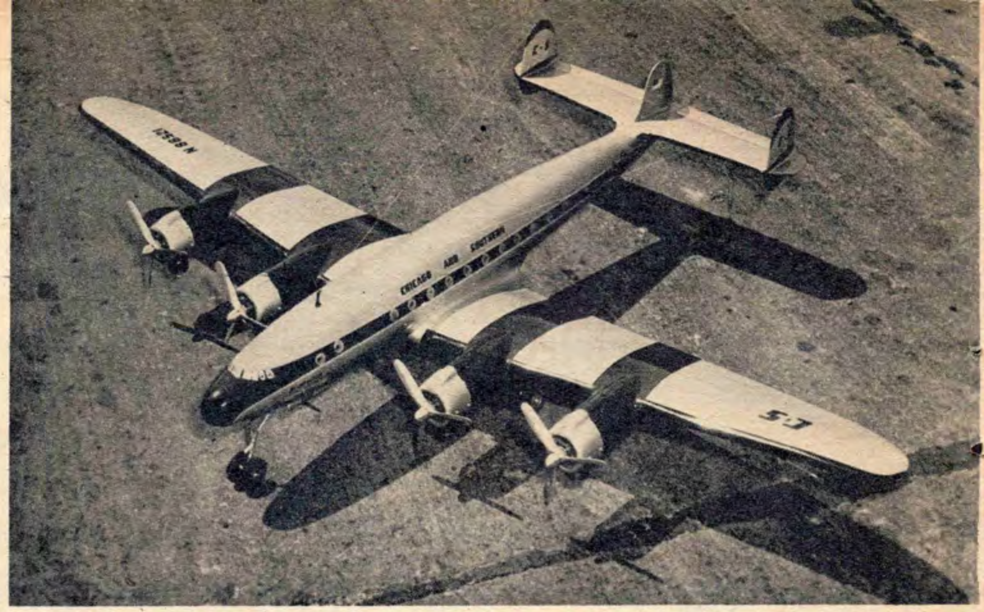


Team racer (looks like AT's Ole Slippery) designed and built by Phil Landray of Wimbledon Power Club. McCoy .29 pulls it around at a steady, economical 75 mph. Already racked up several victories.



Fine example of British kits: Aeronca Sedan of 65.5" span. Designed to take 2.5 cc motors for free flight or radio control. This one has an Elfin 2.40 cc engine. Boasts scale flight characteristics.

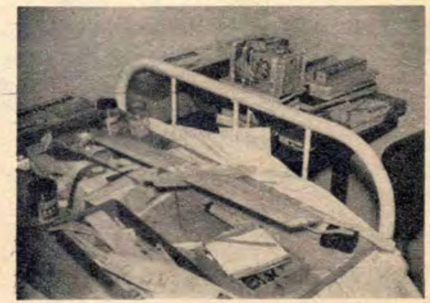
AIR MODEL PIX

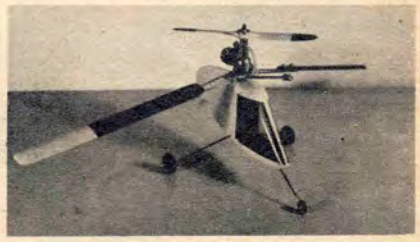


This we acclaim Project-of-the-Month! S. Mascari, Memphis, made this super flying scale of a Chicago & Southern Airlines Constellation which can operate on one, two, three or four motors. Span is 67.5 inches, fuselage is 4 ft. Total weight with four Forster motors is 8 lbs. Turns in 70 mph on 60 foot lines. This is faithful copy of C&S transport "City of Memphis." Our hat's off to Mr. M.

Squadron Leader R. B. Lord of the Royal Air Force is stationed in Malaya where he took this shot of the Selangor Model Aeronautics Club, a typical group competing in the All-Malayan National Model Aircraft Contest at Kuala Lumpur. Free flight rubber, gas and gliders seemed the order of the day. One Korda Powerhouse did 8 minutes O.O.S., landed in tree 2 miles away. Good show!

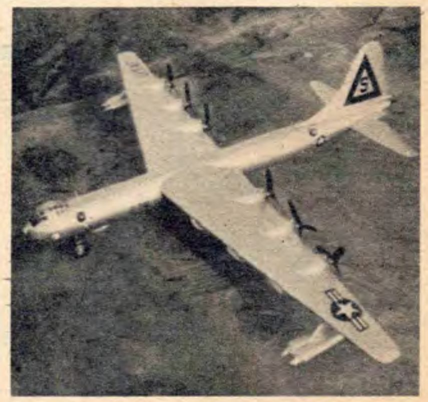
Fifteen-year-old Dick Werner of Burbank, Cal., pictured with his beautiful Civy Boy 84. Isn't this a nice shot with the sun shining through the covering? The 64 oz. model is covered with Jap tissue dyed yellow; trim is red with a black pinstripe. Dick's saving the Orwick .64 powered job for the Nationals. The span is 84 in.; the area, 1,025 sq. in.; it features, you know, a 50% stab.

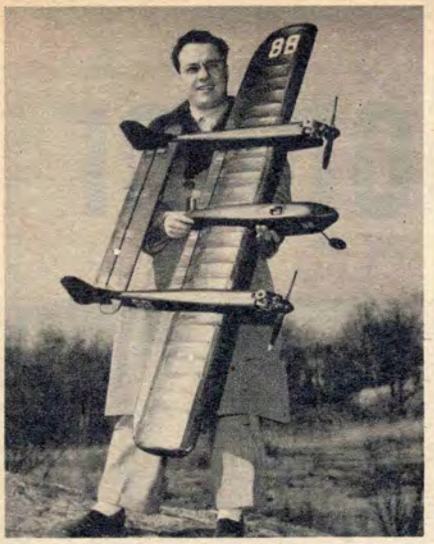




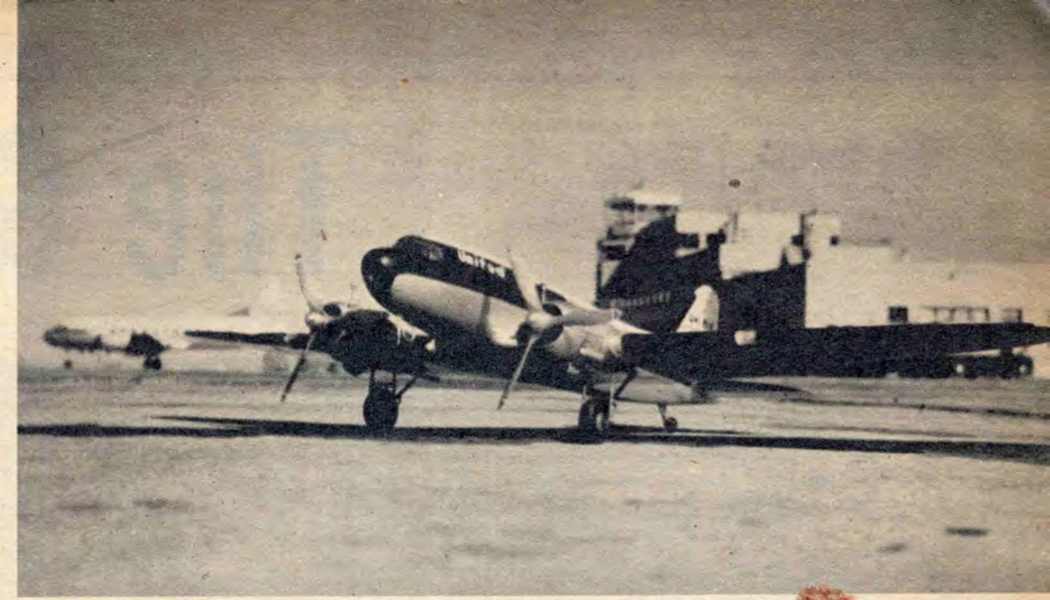
V. A. patient Lawrence Isaacks shows you a model building GI's bed; he's on the mend, soon hopes to fly that Baby Barnstormer. Tom Dietrich, Burbank, Cal., made this copter.

Another super project! Flying scale of B-36D with 6 Wasps by Norman Dickerson, San Diego. 4 dummy jets. U/C, span 74 in. Much detail, retracting turrets, all guns revolve.

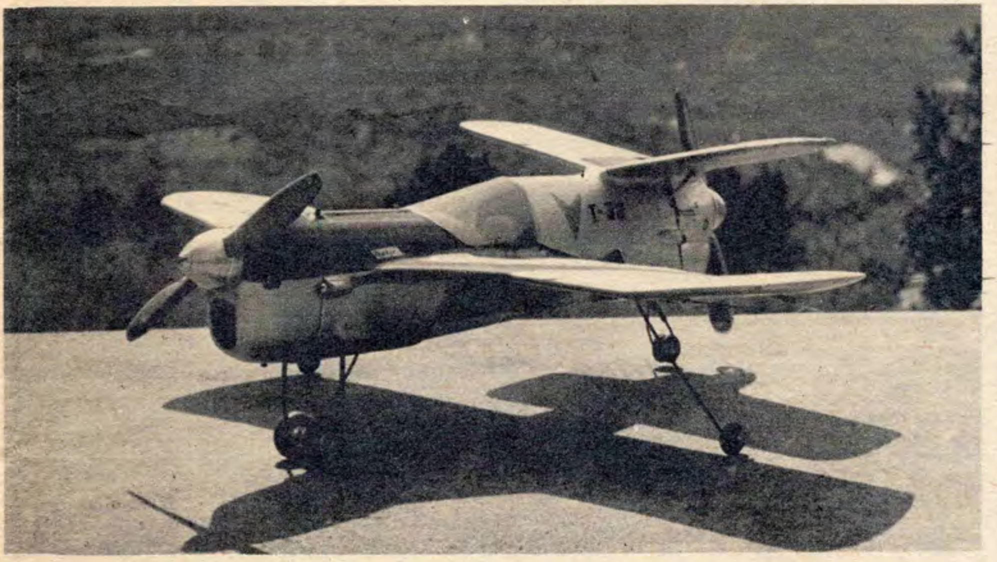




Original twin Fox 35 stunter by Clarence G. Lottinville, Woonsocket, R. I. Span, 58 in., area, 522 sq. in.; 95 mph with 10/6 props. Done full stunt pattern in many contests.

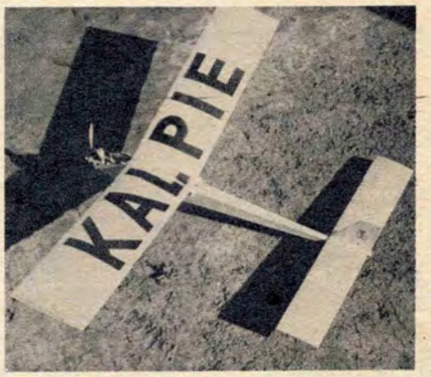


How's this for a realistic pose? Noal Hess of Salt Lake City built this DC-3 with United Air Line markings and posed it in front of operations building at S.L.C. airport. Powered by two Ohlsson .23's. Noal is a real control line scale fan; he also has Elf Twin (.19) powered Ryan Navion with pilot and passenger, sliding canopy, upholstered seats and cabin. He gets an A-plus for effort.



Cpl. Robert H. Turner, San Marcos, Texas, AFB, says, "This twin engine design of mine has span of 18 inches and is powered by two .074 Cubs. Front landing gear is coil spring shock mounted, engines are grounded to the gear to facilitate attachment of battery. Color is silver and black. It is a little heavy for optimum performance, but given a long take-off, it puts in the laps."

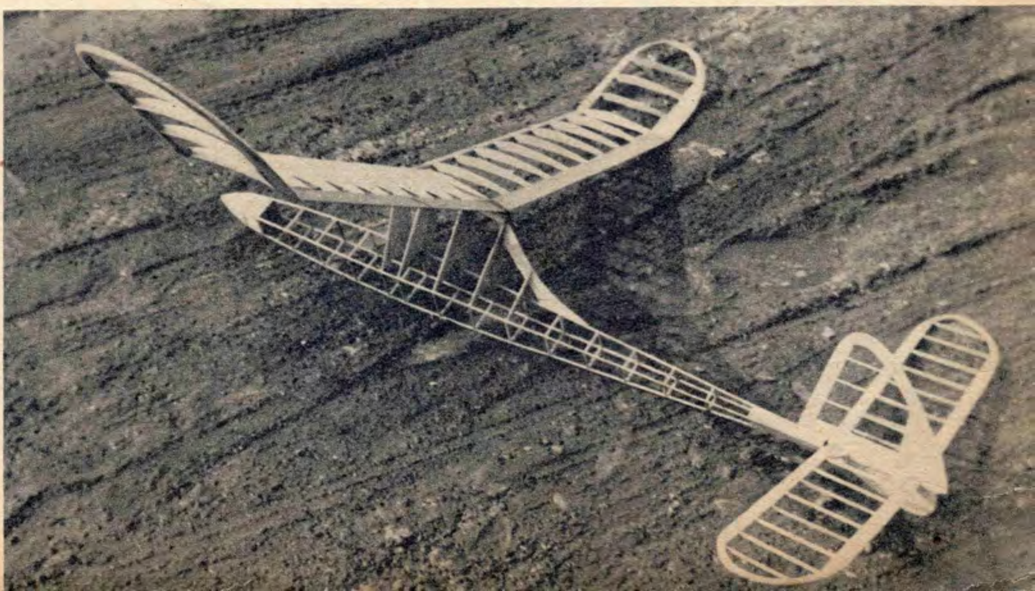
Calling all modeler-photographers! Air Trails will pay $5 for all photos accepted for this feature which are sent exclusively to AT. Shoot 'em in, men!



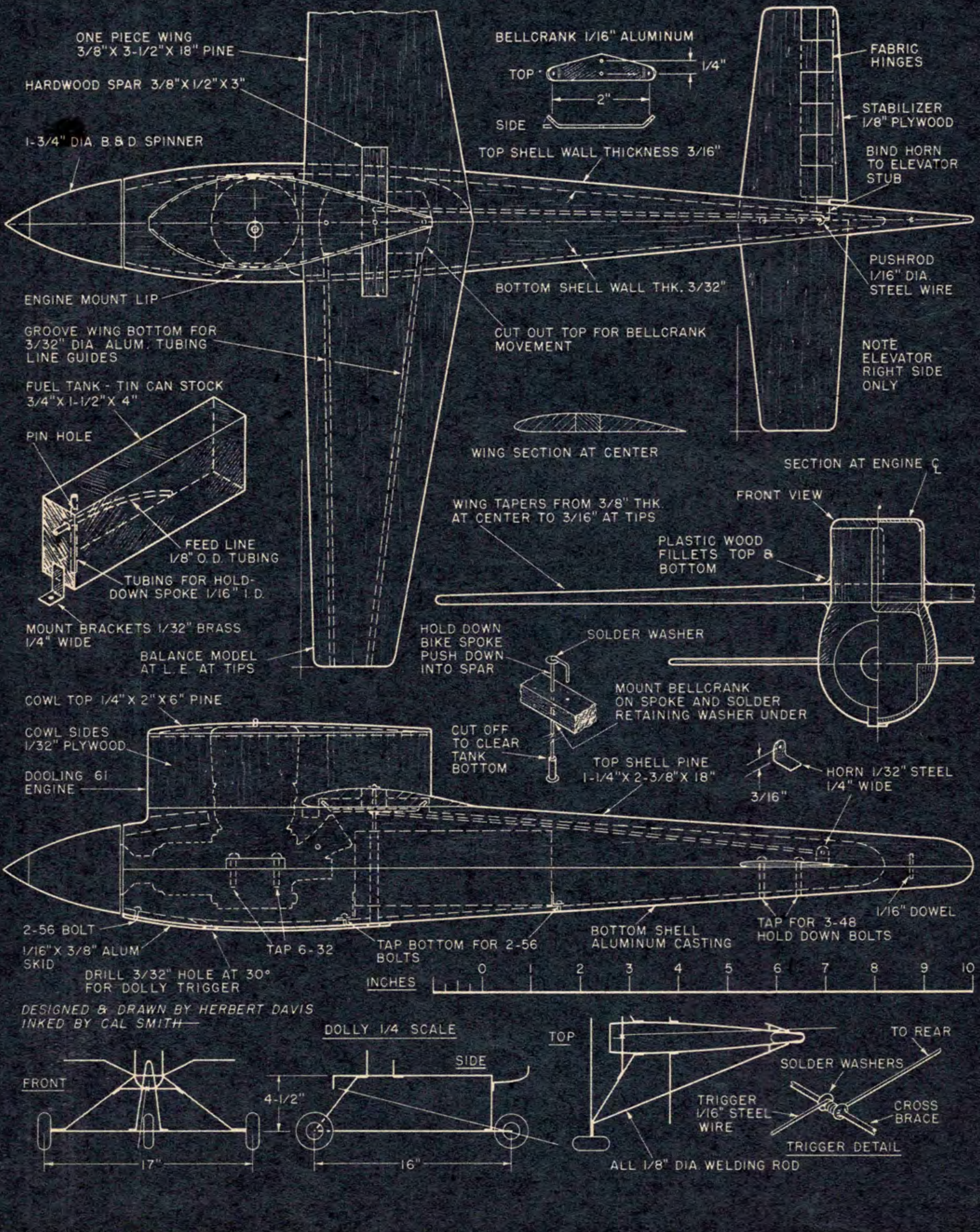
All-sheet balsa F/F by Jim Robson of England (photo by J. Andrews). Single surface 36 in. wing with tip ribs; box type fuselage, sheet sides & bulkheads; Kalper .3 c.c. diesel.

When the Glo Bugs of Vancouver, Wash., put on an inter-club combat contest R. L. Ragan caught Harry Ragan's Fox .35 Barnstormer and Jim Cooper's Torp .29 original in air.

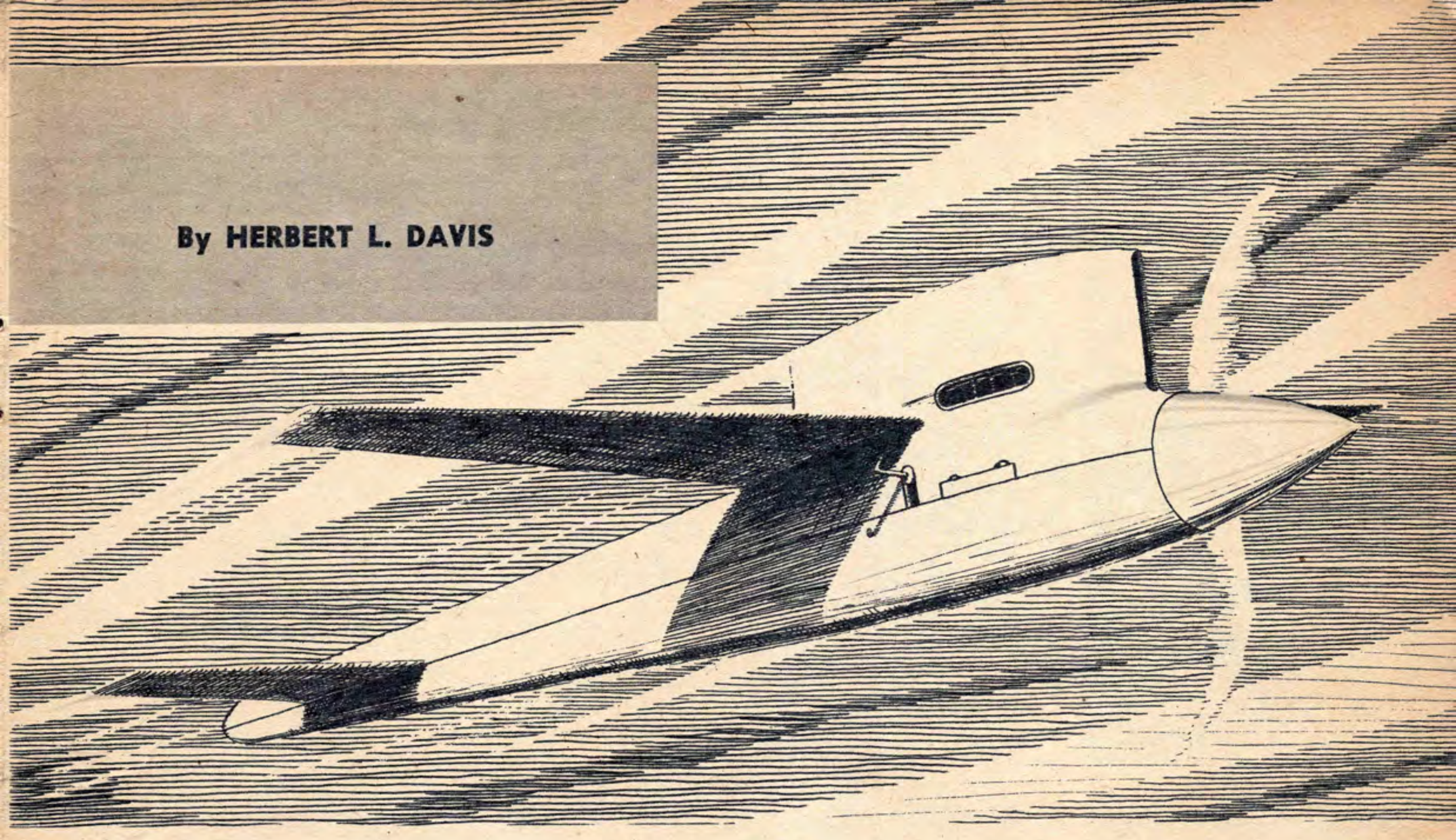
We hear from the Canadian contingent through the contribution of Emil Maslak of Bradford, Ontario. This is his Javelin towline glider before covering was applied. He built this from full-size "AT" plans. Incidentally, a 3c stamp in a note addressed to Air Trails Plan Dept., 304 E. 45th St., New York 17, N. Y., will bring you up-to-date listing of all Air Trails plans. We've got all kinds!



The Gopher


ONE PIECE WING 3/8" X 3-1/2" X 18" PINE
HARDWOOD SPAR 3/8" X 1/2" X 3"
1-3/4" DIA. B.& D. SPINNER
BELLCRANK 1/16" ALUMINUM
TOP
1/4"
2"
SIDE
FABRIC HINGES
STABILIZER 1/8" PLYWOOD
TOP SHELL WALL THICKNESS 3/16"
BIND HORN TO ELEVATOR STUB
PUSHROD 1/16" DIA. STEEL WIRE
ENGINE MOUNT LIP
BOTTOM SHELL WALL THK. 3/32"
GROOVE WING BOTTOM FOR 3/32" DIA. ALUM. TUBING LINE GUIDES
CUT OUT TOP FOR BELLCRANK MOVEMENT
NOTE ELEVATOR RIGHT SIDE ONLY
FUEL TANK - TIN CAN STOCK 3/4" X 1-1/2" X 4"
PIN HOLE
WING SECTION AT CENTER
SECTION AT ENGINE C L
FRONT VIEW
WING TAPERS FROM 3/8" THK. AT CENTER TO 3/16" AT TIPS
PLASTIC WOOD FILLETS TOP & BOTTOM
FEED LINE 1/8" O.D. TUBING
TUBING FOR HOLD-DOWN SPOKE 1/16" I.D.
MOUNT BRACKETS 1/32" BRASS 1/4" WIDE
BALANCE MODEL AT L. E. AT TIPS
HOLD DOWN BIKE SPOKE PUSH DOWN INTO SPAR
SOLDER WASHER
MOUNT BELLCRANK ON SPOKE AND SOLDER RETAINING WASHER UNDER
COWL TOP 1/4" X 2" X 6" PINE
COWL SIDES 1/32" PLYWOOD
DOOLING 61 ENGINE
CUT OFF TO CLEAR TANK BOTTOM
TOP SHELL PINE 1-1/4" X 2-3/8" X 18"
HORN 1/32" STEEL 1/4" WIDE
3/16"
1/16" DOWEL
2-56 BOLT
1/16" X 3/8" ALUM. SKID
TAP 6-32
TAP BOTTOM FOR 2-56 BOLTS
BOTTOM SHELL ALUMINUM CASTING
TAP FOR 3-48 HOLD DOWN BOLTS
DRILL 3/32" HOLE AT 30° FOR DOLLY TRIGGER
INCHES
0 1 2 3 4 5 6 7 8 9 10
DESIGNED & DRAWN BY HERBERT DAVIS
INKED BY CAL SMITH
DOLLY 1/4 SCALE
FRONT
SIDE
TOP
4-1/2"
17"
16"
TO REAR
SOLDER WASHERS
TRIGGER 1/16" STEEL WIRE
CROSS BRACE
TRIGGER DETAIL
ALL 1/8" DIA WELDING ROD

By HERBERT L. DAVIS



One of the country's top speed men, a consistent winner in the National and Plymouth International events, tells you how to duplicate his fine Cl. D job

■ About four years ago when I first began to build model airplanes I was told by some older boys at home to learn to be consistent. I have tried to follow this advice and it has paid off. You will find when you build the Gopher that it is the acme of consistency. The records speak for themselves: first place senior at the Dallas Nationals with 148.76 mph and first place senior at the Detroit Internationals with 148.33 mph. It did 145 mph on the first test flight. The main objective I have tried to attain with this ship is to have a steady, dependable motor run, combined with a confident take-off, and a fast flight. The construction is as follows.

Fuselage. The bottom half is an aluminum casting. It can be made at any foundry that pours aluminum, for about a dollar. First, pattern must be formed from mahogany or pine. A wood lathe can be used to turn most of the outer side of pattern; then gouge out inside to 3/32". After you get the casting it can easily be smoothed out with an automobile body file, followed by polishing with emery paper and waxed. The motor mounts should be carefully drilled and tapped for 6-32 bolts.

The tank is a very important item in speed flying. My particular one has been used with many Dooling .61 engines with much success. It is tall and narrow. The engine may be run on ground with exhaust pointed down, needle valve adjusted so that it runs a little rich at first and at end of run, a little lean. The engine will peak in middle of run on the ground and in the air.

Tank is made from an old fuel can, which can be wrapped around a tank form of ¾" x 1½" x 4" pine block. Tank mount brackets should be soldered in place; make sure the tank is in the correct position.

Wing is made from a piece of ⅜" x 3½" x 18" pine. Airfoil is same at the root as at tips, except for thickness. It is ⅜" at root and 3/16" at tips. The taper is cut in at top, leaving bottom flat. Insert beech spar now. A bicycle spoke is used to hold top and bottom halves together and bellcrank in place; bend it in a "V"-shape at the top, being certain not to forget to solder the washer in place. (I have lost two airplanes because of leaving out this washer.) Grooves should be cut in wing to receive aluminum tubes. The 1/32" music wire lead-outs pass through the aluminum tubes.

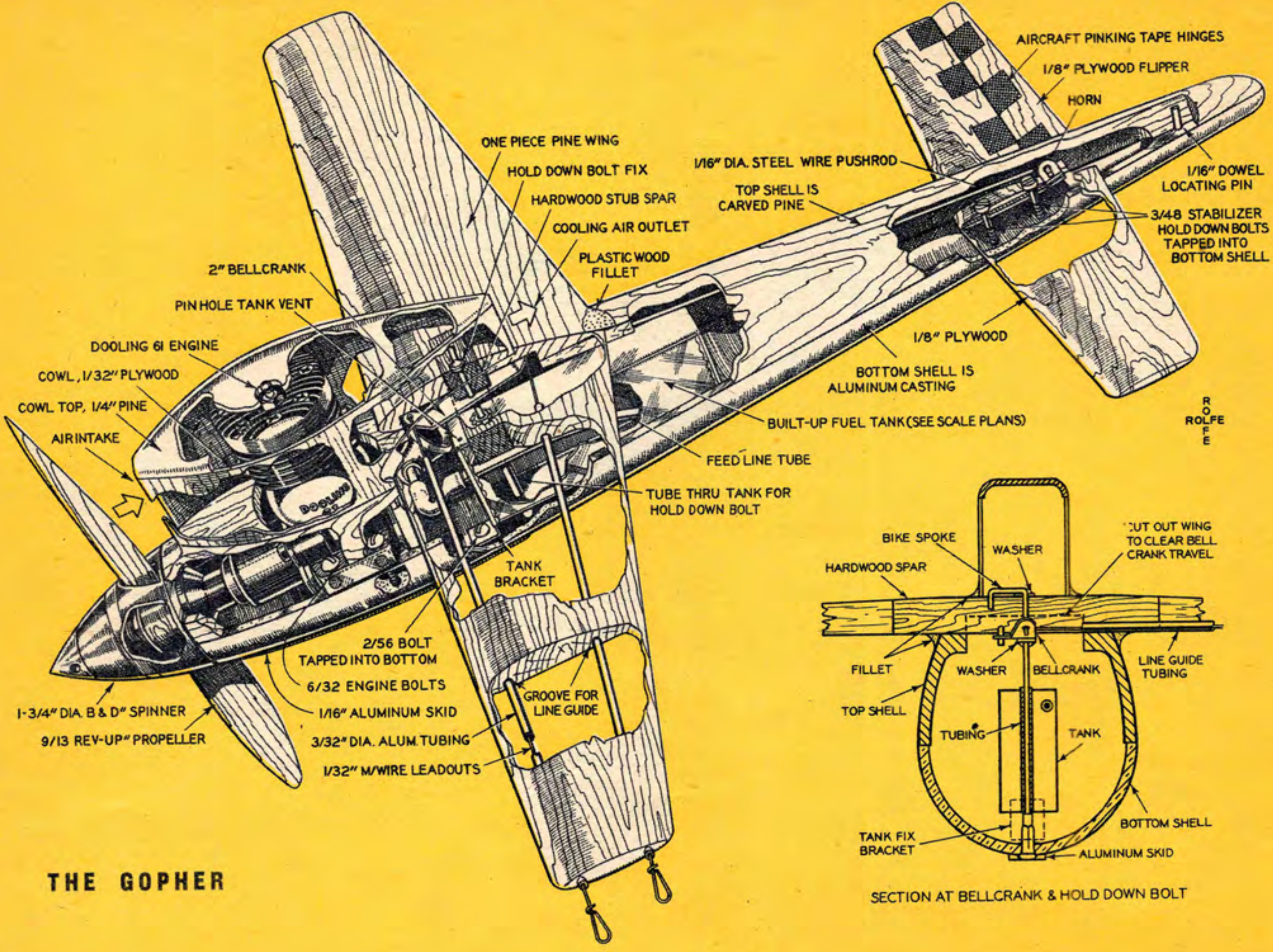
Stab is plywood. Airfoil is kept as close as possible to that of wing except for thickness. Only one side of elevator is used for control. Flipper is held on with cloth hinges. I have found that aircraft pinking tape makes excellent hinges. The horn is constructed from a piece of galvanized iron and held on with thread bindings. Stabilizer unit should be mounted to lower half with bolts tapped into lower half.

Top half is made from a block of pine laid on metal bottom, and outline traced so as to give a perfect fit. Bandsaw the top to outline on plans. Then carve top round but leave the places for wing and cowl flat. Gouge out top leaving it 3/16" thick throughout; cut the holes for cylinder and controls. Then wing can be glued in place, being careful that bellcrank and lead-out wires are installed.

Cowling. First wrap two layers of masking tape around cylinder. Cowl sides can be bent around cylinder leaving a ¼" opening in front and 3/16" in rear. Carve inside cowl top from ¼"x2"x6" pine and then glue all of cowl together at once. When dry, carve and sand top of cowl smooth. Fillets are needed for strength. On this model I used plastic balsa; Plastic Wood is also very good.

Dolly. The one I use is made of soft welding rod and trigger is 1/16" music wire. Almost any locking trigger dolly is good for this ship, but mine is about the most simple.

Flying. I use a stock Dooling .61 engine with a 9/13 Rev-Up

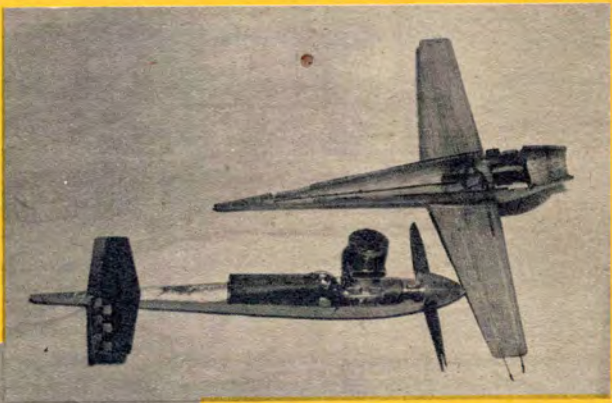

AIRCRAFT PINKING TAPE HINGES
1/8" PLYWOOD FLIPPER
HORN
1/16" DIA. STEEL WIRE PUSHROD
1/16" DOWEL LOCATING PIN
TOP SHELL IS CARVED PINE
3/48 STABILIZER HOLD DOWN BOLTS TAPPED INTO BOTTOM SHELL
ONE PIECE PINE WING
HOLD DOWN BOLT FIX
HARDWOOD STUB SPAR
COOLING AIR OUTLET
PLASTIC WOOD FILLET
2" BELLCRANK
PIN HOLE TANK VENT
DOOLING 61 ENGINE
COWL, 1/32" PLYWOOD
COWL TOP, 1/4" PINE
AIR INTAKE
1/8" PLYWOOD
BOTTOM SHELL IS ALUMINUM CASTING
BUILT-UP FUEL TANK (SEE SCALE PLANS)
ROLFE
FEED LINE TUBE
TUBE THRU TANK FOR HOLD DOWN BOLT
TANK BRACKET
2/56 BOLT TAPPED INTO BOTTOM
6/32 ENGINE BOLTS
1/16" ALUMINUM SKID
1-3/4" DIA. B & D" SPINNER
9/13 REV-UP" PROPELLER
3/32" DIA. ALUM. TUBING
1/32" M/WIRE LEADOUTS
GROOVE FOR LINE GUIDE
BIKE SPOKE
WASHER
CUT OUT WING TO CLEAR BELL CRANK TRAVEL
HARDWOOD SPAR
FILLET
WASHER
BELLCRANK
LINE GUIDE TUBING
TOP SHELL
TUBING
TANK
BOTTOM SHELL
TANK FIX BRACKET
ALUMINUM SKID

THE GOPHER

SECTION AT BELLCRANK & HOLD DOWN BOLT

with ⅛" cut off each tip. I also use the same fuel during all conditions. This is two parts castor oil, four parts wood alcohol, and four parts nitromethene. The model should be taken off with neutral to insure a good take-off. It weighs 30 oz., so at the speed this ship flies you are in for quite a pull.

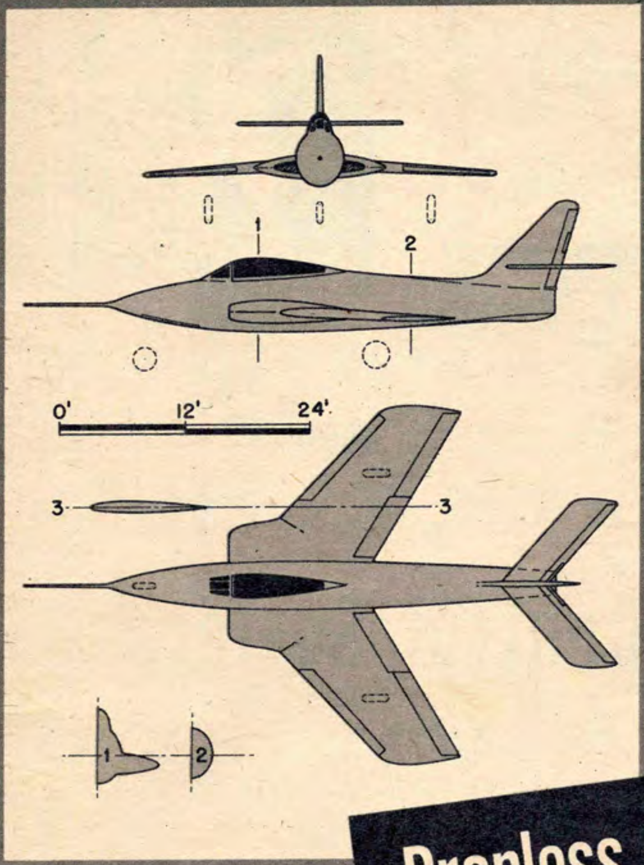
Don't let that aluminum bottom casting scare you off. It's really quite a simple procedure and you'll get some good experience. Check with foundry personnel.



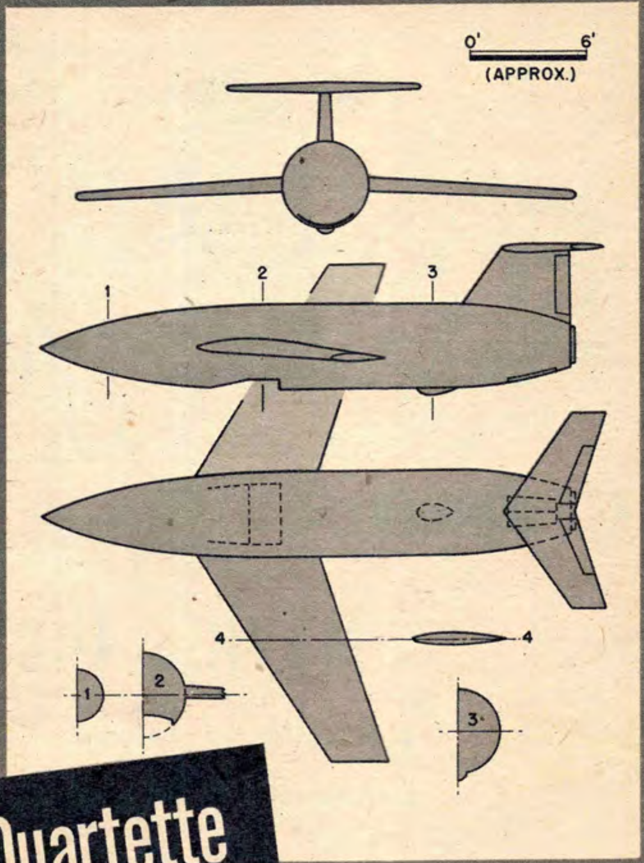
Propless Quartette

Four of America's newest designs: pilotless, experimental and military

REPUBLIC F-84F Thunderjet. Long-range fighter bomber. Six cal. .50 m.g.s, 24 5-in. rockets or four 1000-lb. bombs.


1
2
0'
12'
24'
3
3
1
2

MARTIN B-61 Matador. Radio-controlled pilotless bomber; turbojet engine. Takes off by rocket from mobile platform.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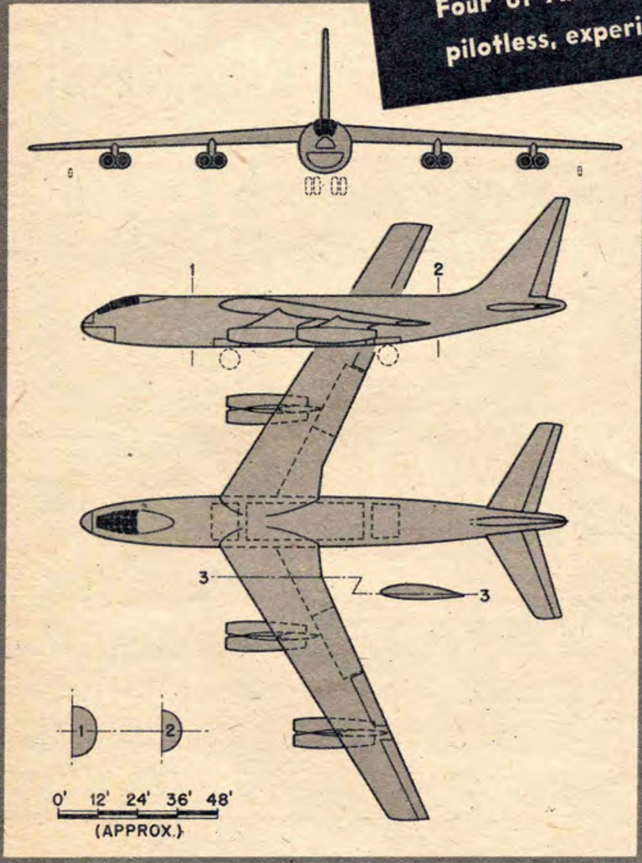
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36'
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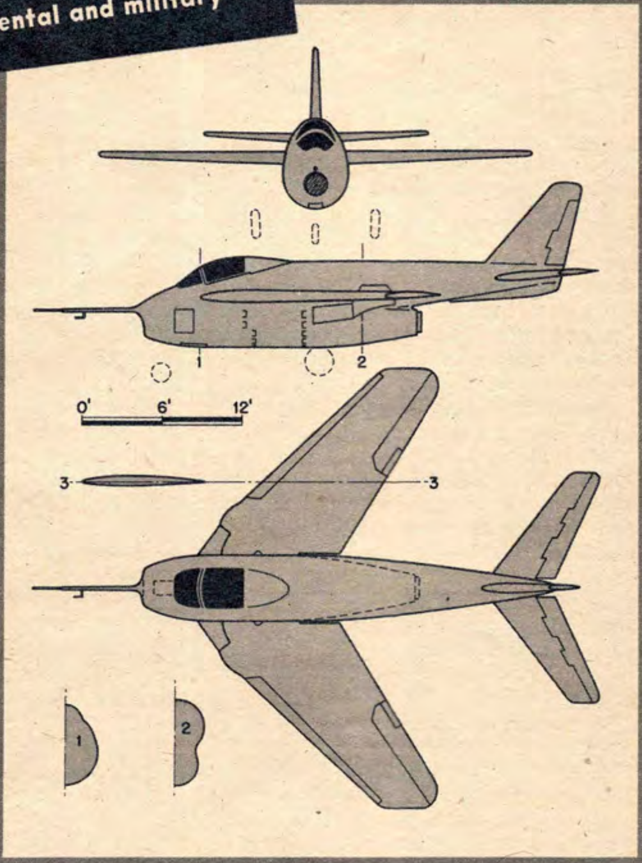
BOEING XB-52 Stratofortress. At present, world's largest jet bomber. It has eight P&W J-57 axial flow turbojets.


1
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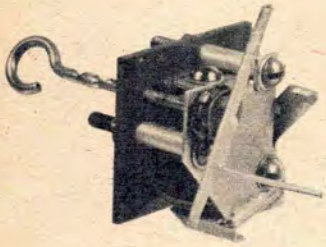
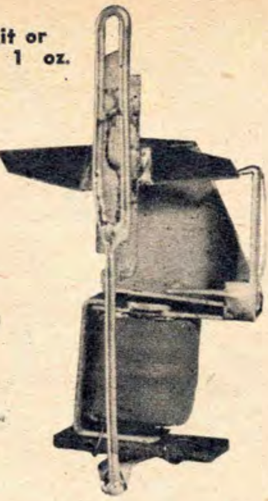
BELL X-5. Research plane to study variable incidence and variable sweep wing. Powered by 4000-lb. thrust engine.

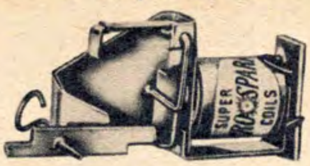
MacNabb's SN
Wt., .5 oz.

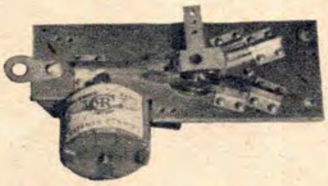


RCH—kit or
complete, 1 oz.

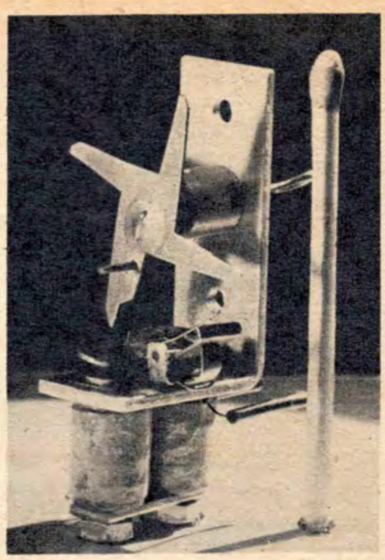


Aerotrol—kit
or complete, .5 oz.





Rockwood self-neutralizing
"rudder" servo—motor driven



Good Brothers, 1 oz.

R/C PRIMER:

Moving the Control Surfaces—1

Been looking for some really basic, easily understood information on radio control escapements? AT's R/C columnist presents all the dope needed for a good start

By **HOWARD G. McENTEE**

■ We have learned that there is a wide variety of radio control equipment on the market today. There is an even wider variety of machinery used to move the control surfaces in your plane, however. Unlike the actual transmitter and receiver, much of the surface moving equipment must be built by the flyer himself, though some is to be had from the same makers who build the radio parts of the installation.

The electronic part of the equipment serves only to operate a set of electrical contacts (on the sensitive relay) in the plane. What can be done with them? The first idea that comes to mind is to move the rudder and so steer the ship—that is exactly what most flyers now do.

An ultra-simple system for this purpose is depicted in Fig. 1. Here a small motor is connected to the relay contacts and a battery. When a signal comes in, the motor turns the rudder back and forth slowly. Pretty crude, but it *is* radio control, and good flights have been made with such a setup. The motor may be stopped in any position to hold a turn, but the plane must be watched closely, in order to stop the rudder where desired.

An even simpler system which does away with the gears is that in Fig. 2, where an electromagnet with an extended arm is linked to the rudder. This gadget will allow turns only one way, depending upon the way the stops are set. As shown, you can have right turn and neutral; to go left, you must hold the plane in a right turn for 270 deg. more or less.

It isn't much of a step from this to another electromagnetic device that really gives fast control to either side. This is the escapement; to the magnet of Fig. 2 we add a pivoted armature and a "wheel" with two or more arms. Power to run the wheel and to move the rudder comes from a rubber band—electricity is used only to *control* this power.

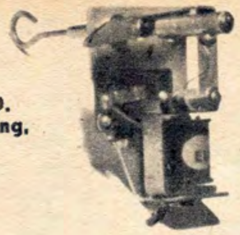
Figure 3 shows a two-arm escapement, the simplest sort, though it has quite a few advantages (and some disadvantages, too) over other designs. As we show it, there are four possible positions, two neutrals and one each of right and left. To get the latter, you must hold the transmitter button down to send out a continuous signal. As soon as you release the button, the escapement jumps to neutral.

This is helpful to the inexperienced—if you are flying in a turn and want to straighten out fast, just let go of the button! Holding a turn for a long time means that the escapement batteries are on continuously; they will run down faster with a two arm escapement than with the style shown in Fig. 4.

Here we have the four-arm design, which requires power from the battery only to move the rudder to the position you want—but none to hold it there. This design also offers half-positions, though few flyers make use of them for this purpose. It will be seen from the diagrams that a pulse (that is, when you depress the button and release it immediately) is required to go from neutral to either left or right, and another pulse to get from the turn position back to neutral.

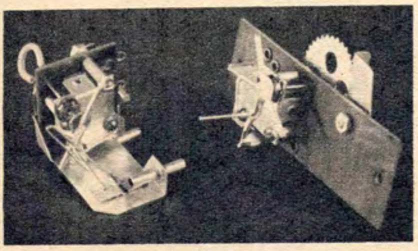
A few experimenters have used three-arm escapements, but these are very rare, and none is made commercially, though the one shown in Fig. 5 might be called a three-arm type since it has three "working" arms (and we don't consider the neutral position a "working" one). This is a new development that will doubtless prove very popular, for it is ideal for the novice and the expert alike. The beginner should like it because there is no necessity to remember "what position comes next," a feat that bothers even the advanced flyer at times. There is only one neutral, and whenever the button is released, the wheel moves to this position.

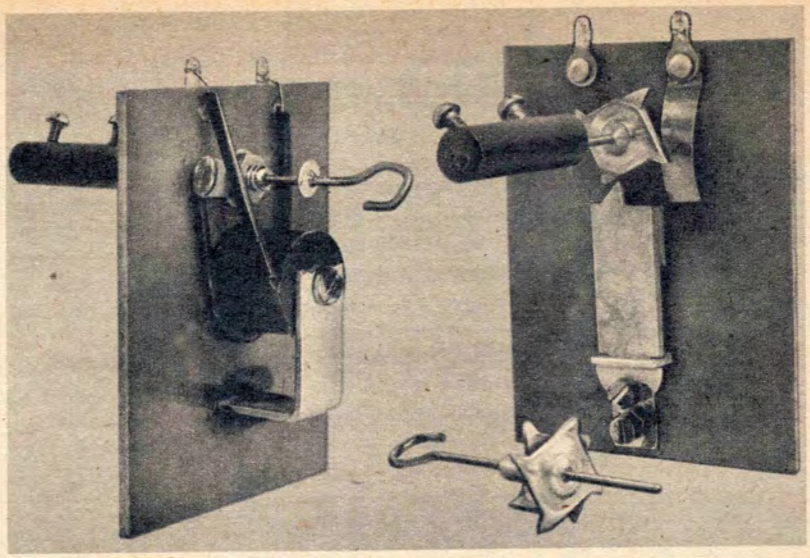
In operation, one pulse will always produce, say, left—two pulses, right. You can thus make any number of right turns without going through unwanted (and often confusing) lefts. To hold a turn, you just hold the button down. The commercial version of this escapement has a third position which may be used for any purpose you wish; in this position, an electrical contact is closed which may be used to work an elevator, or for motor control. This novel unit was perfected by H. H. Owbridge (*Continued on page 70*)



Polk's E. D.
double winding,
3/4 oz.

Bonner motor escp. (lt.),
compound escap. (rt.)

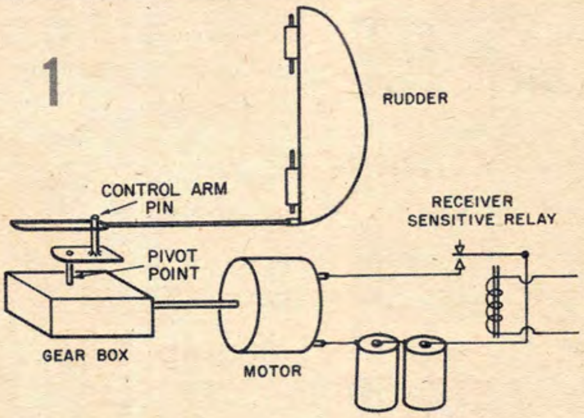




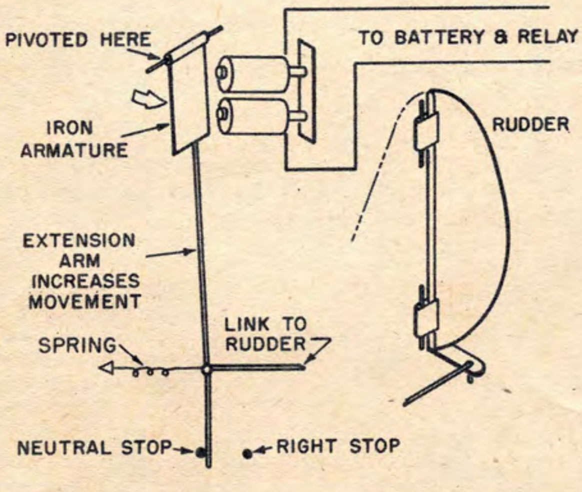
Telasco's E.C.C., 7/8 oz.
double winding, uses 2 or 4 arms

DIAGRAM DATA: 1) Simplest type of rudder control. 2) Next step in moving the control surfaces (see article for additional details on all of these). 3) Aerotrol and RCH types. 4) Good Brothers (formerly Beacon). 5) Bonner Compound escapement action; Point B can only engage arm #1 for neutral-current off condition; arms 2, 3 and 4 can hit only Point A; contacts closed only in position D; note that neutral arm is almost at same spot as in A; not shown is a "governor" that slows the rotation of the wheel.

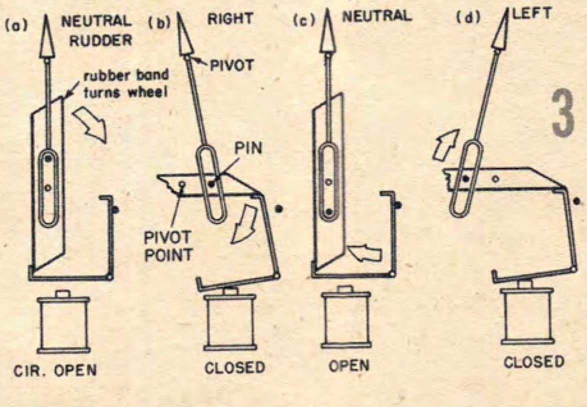
1


RUDDER
CONTROL ARM PIN
RECEIVER SENSITIVE RELAY
PIVOT POINT
GEAR BOX
MOTOR

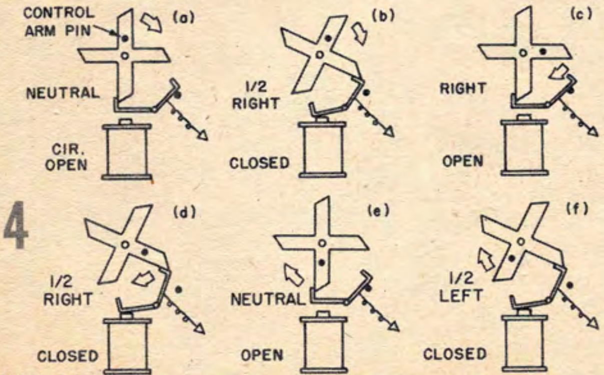
2


PIVOTED HERE
TO BATTERY & RELAY
IRON ARMATURE
RUDDER
EXTENSION ARM INCREASES MOVEMENT
LINK TO RUDDER
SPRING
NEUTRAL STOP
RIGHT STOP

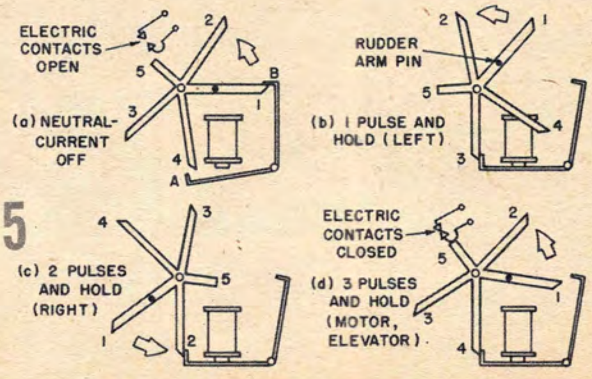
3


(a) NEUTRAL RUDDER
(b) RIGHT
(c) NEUTRAL
(d) LEFT
rubber band turns wheel
PIVOT
PIN
PIVOT POINT
CIR. OPEN
CLOSED
OPEN
CLOSED

4

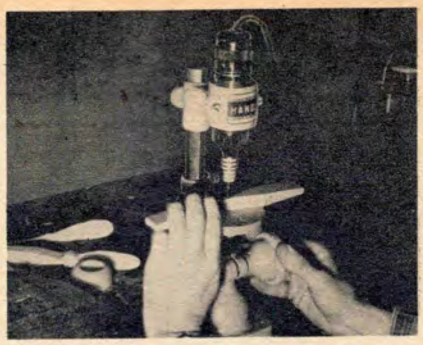

CONTROL ARM PIN
(a)
NEUTRAL
CIR. OPEN
(b)
1/2 RIGHT
CLOSED
(c)
RIGHT
OPEN
(d)
1/2 RIGHT
CLOSED
(e)
NEUTRAL
OPEN
(f)
1/2 LEFT
CLOSED

5


ELECTRIC CONTACTS OPEN
(a) NEUTRAL-CURRENT OFF
A
B
RUDDER ARM PIN
(b) 1 PULSE AND HOLD (LEFT)
(c) 2 PULSES AND HOLD (RIGHT)
ELECTRIC CONTACTS CLOSED
(d) 3 PULSES AND HOLD (MOTOR, ELEVATOR)
1
2
3
4
5

Smoothing out magnesium speed pans with Speedway's Model 150 Speedsander is a cinch. This is a heavy duty tool that can be used for numerous sanding operations. Sanding pad moves in a 3/16 in. orbit; 1/15 hp. motor.

One of the best known tools among hobbyists is the Handee Grinder. This DeLuxe model is being used to gouge out the cockpit of a solid scale exhibition model. Note accessory box; discarded dental drills work fine!



Here is the Handee again in its No. 7000 drill press which converts the hand tool into a fine little vertical drilling machine. You can drill accurate holes in props and wheels, put lightening holes in ribs, leading and trailing edges.

Power Tools Speed the Job

You can build better models much faster through the assistance of the right power tools; here's a report which will help you decide

■ With the present-day pressure to build more and more planes and fly in more and more events, the poor modeler is sorely pressed to keep up with the parade even with the plentitude of prefabricated kits.

Whenever our citizens find that their normal capacities to produce are not enough for the job at hand, there is only one thing to do—they turn to auxiliary power of some sort, usually electricity because it is clean, abundant, and available 'most everywhere. This is just what the modeler can do, and there are lots of power tools to help him speed up his building jobs. Most of these are in the hobby class—that is, they are manufactured economically enough for the average hobbyist to buy.

They are entirely suitable for such use, too. If you want to get a tool that will run eight hours a day, week in and week out, you must pay a lot more for it; you are then going into the industrial class of tools, and you will have to pay accordingly. We'll give you a run-down of the more common powered hand tools suitable for the home workman. Though we call them "hobby" items, many of those we will cover are used professionally, too.

In a broad way these tools may be split into two large groups, those that operate with rotary motion, and those which produce reciprocating action. The most common of the rotary tools is the so-called hand grinder. Despite this name, the tool may be fitted for a staggering variety of operations, merely by changing the accessories in the chuck. This type of tool is probably the most widely used of any. There are almost a dozen different makes on the market, each maker producing several sizes.

We have chosen one of the original makes to illustrate several of the uses to which such a tool may be put. This particular grinder is 1⅝" dia. and weighs only 12 oz. It has a rotary switch at the rear of the case, and a collet-type chuck. Such a chuck is simple and accurate, and is fitted to many of the rotary tools. The accessories come in shaft sizes of 1/16", 3/32" and ⅛", and a different collet insert must be put in the chuck for each size. The 3'32" size is the most generally used.

These tiny powerplants have compact electric motors that turn up to 25,000 rpm or more. When fitted with the correct tool for the job to be done, they can handle an amazing variety of tasks. For work on hard metals, you need the grinding wheels, which are made in more shapes and sizes than you can imagine. For softer metals, plastics, wood, etc., steel burrs are handy. Here again, there are literally hundreds of types.

Then, too, you can get tiny sanding drums and discs in several sizes, wire and bristle brushes, rotary saws and drills. The latter are a special type designed for these tools, and though they come in quite a few sizes, the shanks are all the same size, to fit the collet chucks.

The purchaser of any of these tools would be wise to buy one of the accessory assortments available, so that he may learn what the various items will do; then when special jobs come up, he will have a better idea of the type of accessory needed to take care of them.

As a helpful hint, we may mention that most of the drills used by dentists have the 3/32" shank; dentists do not use these tools if they have the slightest defect in the cutting edges, but such defects do not bother the hobbyist in the least. Your dentist will probably be only too glad to get rid of some of his poorer cutters, and you will be

Courtesy, Polk's Model Craft Hobbies, Inc.

Another name famous among the hobby fans: Burgess Vibro-Tool. Has magnetic vibrator type of motor with accessories held in collet-style chuck. Stroke may be adjusted to suit type of work. Takes blades, gouges, etc.

Here cutting out plywood fire walls is Synchro Model 201 Magnetic jigsaw. Magnetic type of "motor" produces 7,200 cutting strokes per minute. Mechanism is very simple, requires no oiling or other maintenance. Safe.

Important feature of this Dremel Model A Sander is light weight—only 2.5 pounds. Sandpaper moves fore and aft at 14,400 strokes per minute. Tool is guided over the surface, no pressure required. Garnet paper is used.

A good example of the flexible shaft type of rotary tool is this Foredom No. 100 Flexible Shaft Machine shown with a No. 2 accessory set. The handpiece, held like a pen or pencil, is only ½" diam., ideal in tight places.

amazed at how these will dig into metal, even on steel.

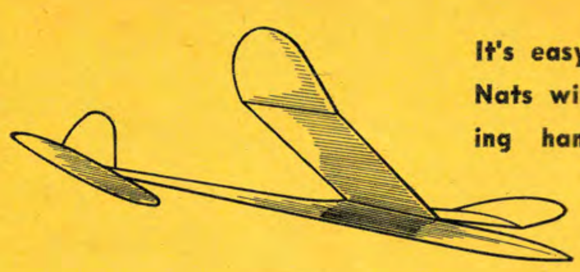
Several manufacturers offer stands to add to the versatility of the hand grinder. The tiny drill press we show in action is one of these: it makes easy such jobs as putting accurate holes in props and wheels. With simple guides clamped to the table, routing jobs are accomplished quickly and accurately. Another convenience is a bench holder. The grinder clamps in this and allows the operator to use both hands to hold and guide delicate pieces.

Another type of rotary tool is the flexible shaft machine; here, the motor is separate from the handpiece, and the latter may therefore be made considerably smaller in diameter. Some of these handpieces are only ½" diameter, and may be held just like a pen or pencil. Here again, the collet chuck is the most widely used, and the accessories are the same as employed in the hand grinder.

The flexible shaft machines in general do not turn as fast as the hand grinders, but because of the small diameter of the handpiece, they may be used in really close quarters. The motor is generally hung up on the wall out of the way, though some of these units have the motor mounted on a table stand.

The particular machine we show is a typical hobbyist's tool; it runs at 10,000 rpm, and has a 1/25 hp motor, ample for a wide variety of model purposes. You can get both the flex shaft tool (*Continued on page* 71)

HOW TO KEEP THE LITTLE WOMAN HAPPY! One outstanding feature of any fine power tool is that it encourages you to tackle some of those household chores which you keep putting off. Such as sanding a chair.



It's easy to duplicate this Nats winning, record-holding hand-launched glider

Brawner's Record Glider

■ I have flown this design in many contests and have always done well with it. As you know, a glider is a type of model plane which takes lots of work in getting it to perform right, despite its simple appearance.

This is a better than average design because I flew the same ship in both the outdoor and indoor events at the last Nationals and won first in outdoor setting a new record (of 16:44.6) and also took third in indoor with the same plane.

I won the magnificent Tulsa Glue Dobbers' Perpetual Trophy for high time.

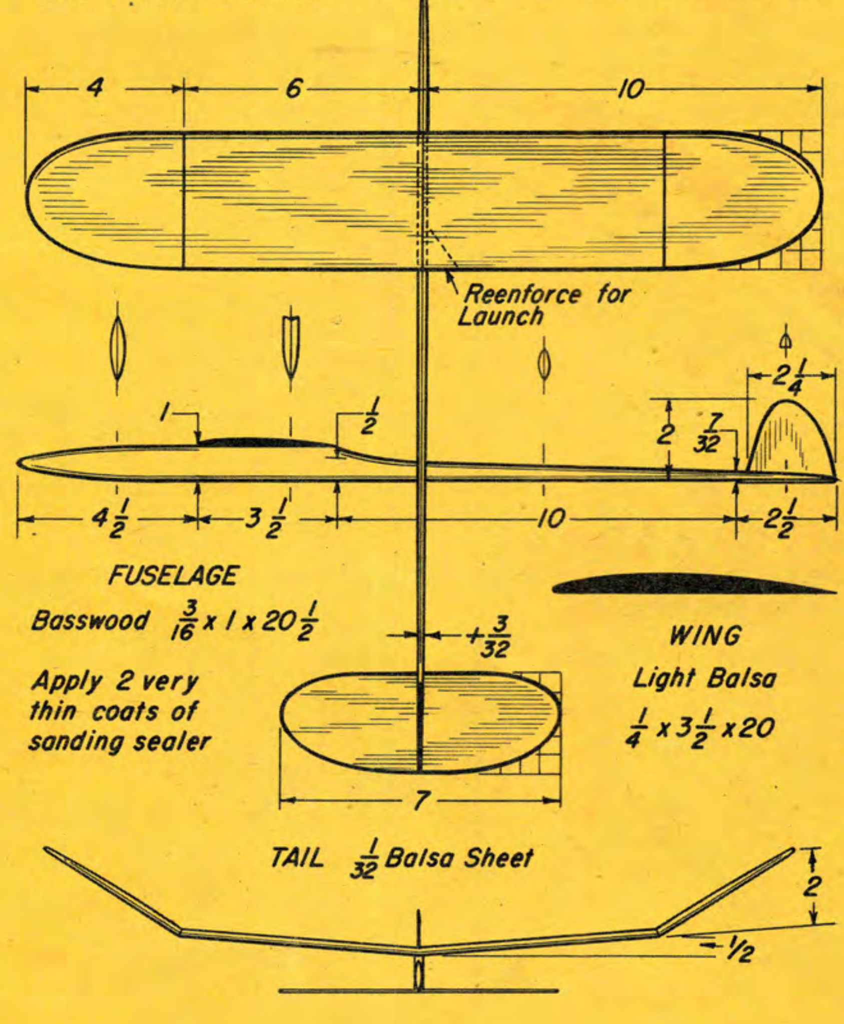
For the construction, pick out very light wood for your wing and tail and be very careful when you sand to make all parts even.

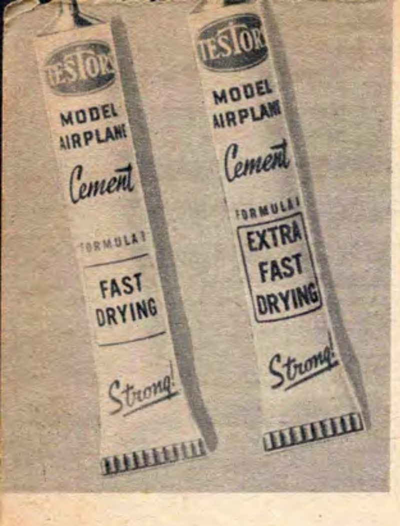
The body should be bass wood: it's strong yet light.

Use two very thin coats of sanding sealer and sand lightly after each coat.

Your glider should climb to the right, pull out to the left and glide to the left.

—Bob Brawner, Phoenix, Ariz.





USE THE RIGHT CEMENT...

TESTORS FAMOUS MODEL AIRPLANE CEMENTS are formulated to meet the exact requirements of the cementing job you want to do. Keep both of them on hand at all times!

FORMULA A is *extra fast drying* for quick, easy construction of lightweight models and for on-the-spot repairs.

FORMULA B is *fast drying*... the *strongest* for balsa or hardwood... for metal to metal ... for metal to wood. It is your best bet for general work. Available in 15c and 25c tubes.

TESTOR'S
DOPE
OFFICIAL ARMY-NAVY AIRCRAFT
GLOSS BLACK
TESTOR CHEMICAL CO. ROCKFORD ILL.

OUTSELLS ALL OTHER DOPES...

Testors Dope has no equal for high hiding power... easy brushing or spraying... excellent rubbing qualities... high flexibility... film toughness... pure color brilliance. Reasons a-plenty why it is far and away the largest selling, most asked-for-by-name line on the market! Yes... it costs a little more, but model builders have learned by comparison and experience that Testors extra quality is well worth the extra pennies. Available in a complete range of colors — including official Army-Navy aircraft colors — at dealers everywhere.

DON'T SAVE IT FOR A RAINY DAY...

Applying the finish to your model would seem to be an ideal indoor job for a rainy day. But actually it isn't so. That's because all fast-drying dopes have a tendency to "blush" (the formation of a milky or foggy film on the finished surface) when applied under humid conditions, even when they have been formulated to resist this effect, as is the case with TESTORS DOPE. "Blushing" is not much of a problem during the winter months when houses are heated and the atmosphere remains dry most of the time. During the spring, summer and fall, however—when rain and other weather conditions are not always so favorable—you can easily run into trouble. Therefore, choose a dry day for your finishing! If you are in doubt, test results on a piece of scrap wood to make sure.

It is well to know, though, that if "blushing" should appear, it can be corrected... especially if you have been using a colored dope. Just rub the *thoroughly dried* surface with rubbing compound until the disturbing film has been eliminated. Since it is better — and easier — to prevent trouble than to cure it, you will want to be on your guard at all times!

Properly handled under suitable conditions, TESTORS DOPE will give you very pleasing results. Its excellent application properties, unequalled quality, and wide range of beautiful colors are guarantees of satisfaction.

1st MILESTONE MODEL

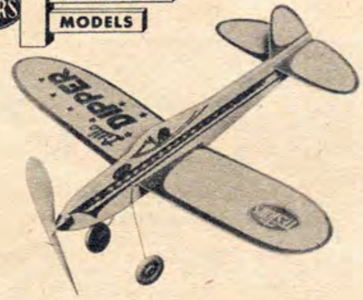
Hand-Launched
Go-Hi
10c — Individually Packaged — 25c

TESTORS MILESTONE MODELS

2nd MILESTONE MODEL

Rubber-Powered
LITTLE DIPPER and BIG DIPPER
50c — Individually Packaged — $1.00

TESTORS MILESTONE MODELS



3rd MILESTONE MODEL

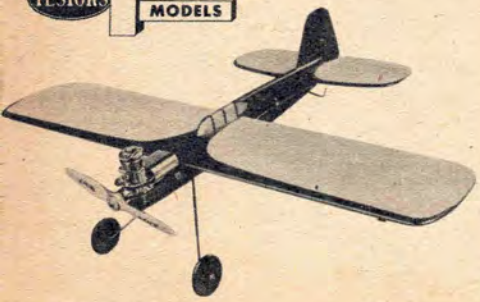
Control-Line Trainer
FRESHMAN... "9"... "19"... "29"*
$2.48 $2.98 $3.98

TESTORS MILESTONE MODELS

4th MILESTONE MODEL

Control-Line Stunt Trainer
SOPHOMORE... "9"... "19"... "29"*
$2.48 $2.98 $3.98

TESTORS MILESTONE MODELS



5th MILESTONE MODEL

Control-Line Stunt
JUNIOR... "9"... "19"... "29"*
$3.48 $3.98 $4.98

TESTORS MILESTONE MODELS

6th MILESTONE MODEL

Control-Line Super Stunt
SENIOR... "9"... "19"... "29"*
$3.48 $3.98 $4.98

TESTORS MILESTONE MODELS

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*for the McCOY "9", "19", and "29" engines, the Testor-McCOY "9", "19", and "29" propellers, and Testors "39" fuel.

TESTORS
PAINT
For Plastics
RED
TESTORS

PAINT FOR PLASTICS

. . . a new product everyone has been waiting for!

This durable, easy-to-brush finish — developed especially for use on plastic models — has many features! It provides excellent one-coat coverage in most cases and with most color combinations . . . can be applied over a previous, still-wet coat without smudging or blending . . . dries hard and slick . . . has good adhesion on glossy surfaces . . . can also be applied over dull-sanded areas without loss of lustre . . . is easy to work with on any polystyrene or cellulose acetate plastic. Available in 10 popular colors: Gray, Blue, Silver, Red, Green, Olive Drab, Orange, Yellow, Black, White; also Thinner. Price — just 15c per bottle.

TESTORS
TESTORS
POLYSTYRENE
CEMENT
For Plastics
CAUTION: INFLAMMABLE MIXTURE
DO NOT USE NEAR FIRE OR FLAME
MADE IN U. S. A. NET: 3/4 OZ.
TESTOR CHEMICAL CO., ROCKFORD, ILL.

TESTORS POLYSTYRENE CEMENT — also a new Testors item — functions as far more than just a stick-together adhesive for polystyrene plastic. Actually it *fuses* the parts together so that they are permanently joined in a real bond. Perfect for your model building; also for all kinds of mending and repairing jobs on plastic toys, household items, etc. Formulated with proper viscosity to permit easy, even application without excessive running or spreading. Comes in handy 15c bottles.

$100.00 CASH PRIZE FOR BEST NAME

Here's a chance for you to make money — have fun, too! Suggest a name for Testors Paint for Plastics; fill out the coupon; then paste on a postcard or drop in an envelope and mail to us. In the event of duplicate entries, only the one bearing the earliest postmark will be considered.

PAINT FOR PLASTICS CONTEST
TESTOR CHEMICAL COMPANY, ROCKFORD, ILLINOIS

The name I suggest for your new product — Testors Paint for Plastics — is:

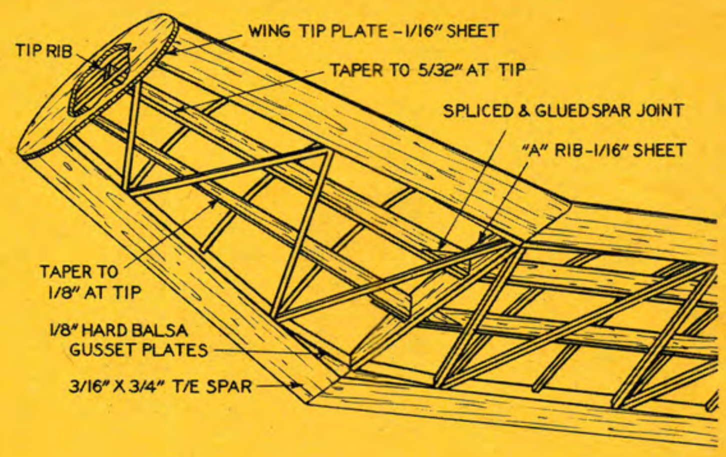
. . . .
(Please Print Plainly)

My Name. . . . .

Address. . . . .

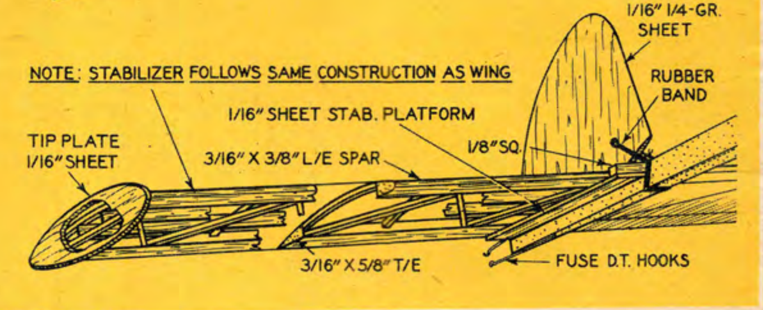
City. . . . . Zone. . . . . . State. . . . .

Becker and P. W. "Tony" coaches high school football and teaches. He's all-round flyer; has held numerous indoor endurance records.


TIP RIB
WING TIP PLATE - 1/16" SHEET
TAPER TO 5/32" AT TIP
SPLICED & GLUED SPAR JOINT
"A" RIB-1/16" SHEET
TAPER TO 1/8" AT TIP
1/8" HARD BALSA GUSSET PLATES
3/16" X 3/4" T/E SPAR

PHILLY WHIZ

By ANTHONY J. BECKER, Jr.


1/16" 1/4-GR. SHEET
NOTE: STABILIZER FOLLOWS SAME CONSTRUCTION AS WING
RUBBER BAND
1/16" SHEET STAB. PLATFORM
TIP PLATE 1/16" SHEET
3/16" X 3/8" L/E SPAR
1/8" SQ.
3/16" X 5/8" T/E
FUSE D.T. HOOKS

■ When you first look at the *Philly Whiz* you will probably say that the wing and tail construction is too complicated to build. It is an optical illusion. Less time is required to build this type than the conventional job with the solid ribs and spars.

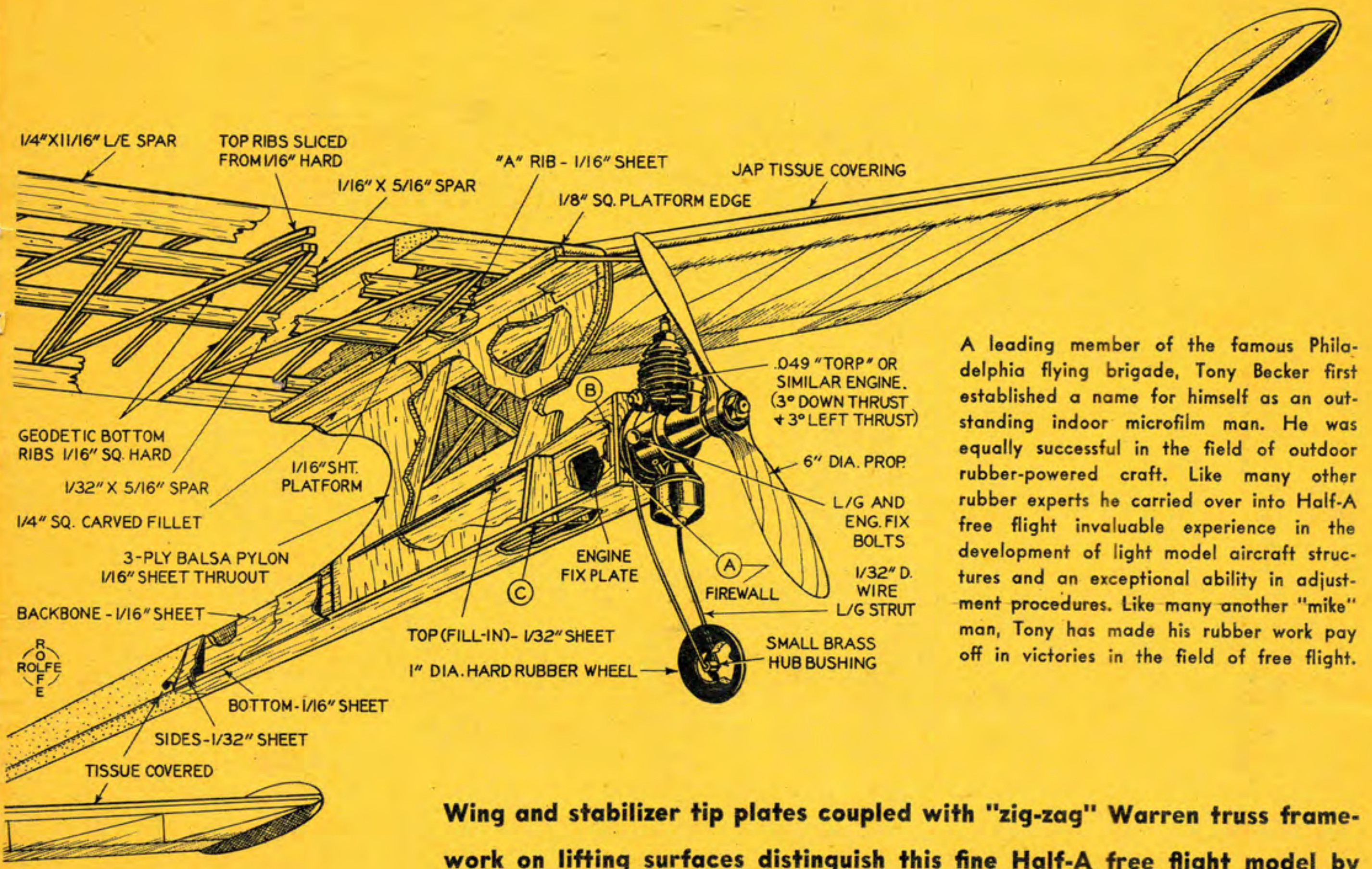
The large leading and trailing edges give the wing and stab plenty of strength and yet the sliced ribs make it extra light. The "semi-geodetic" bottom ribs help to prevent warps, while the closely spaced top ribs cut down on the sag between ribs.

The wing should be made in one piece. Use two medium-hard 3/16" x ¾" ready-cut trailing edges. Slice 1/16" off of the tapered end of the leading edge and sand to an airfoil shape. Pin the leading edge and trailing edge in place. Use hard 1/16" sheet and cut 1/16" square strips. Fit these strips in place and glue. (The novel idea about this method is that if you cut a strip too short you can use it on the wing tip or stab. You also save on wood. Every good builder uses up the scraps.)

Next cut the spars and glue in place on the ribs. Note: do not glue the spars at the dihedral joints. Make a template for the upper camber of the wing. Use hard quarter-grained 1/16" sheet and cut the ribs 1/16" thick. Fit and glue in place. Remove the wingtips from the plans and cut the bevel for the dihedral angle and glue. Cut and glue the gussets.

Follow the same procedure for the center dihedral joint. Cut three solid 1/16" ribs for the dihedral joints, notch for the spars, and glue in place. Cover the wing with Jap tissue. Note: cut and glue 1/16" thick wingtip plates before wetting and doping the wing. This will prevent the end ribs from warping because of the tissue strain. I used two coats of plasticized dope and one coat of fuel proofer.

The stab is constructed exactly as the wing, and because there are no tapers it is easier to build. The leading edge is ⅝" wide cut down to ⅜". The only difference is the two solid center ribs. They are glued 1/32" away from each side of the center line. This will leave a 1/16" wide opening for the


1/4"X11/16" L/E SPAR
TOP RIBS SLICED FROM 1/16" HARD
1/16" X 5/16" SPAR
"A" RIB - 1/16" SHEET
1/8" SQ. PLATFORM EDGE
JAP TISSUE COVERING
GEODETIC BOTTOM RIBS 1/16" SQ. HARD
1/16" SHT. PLATFORM
1/32" X 5/16" SPAR
1/4" SQ. CARVED FILLET
3-PLY BALSA PYLON 1/16" SHEET THRUOUT
BACKBONE - 1/16" SHEET
ROLFE
.049 "TORP" OR SIMILAR ENGINE. (3° DOWN THRUST + 3° LEFT THRUST)
6" DIA. PROP.
L/G AND ENG. FIX BOLTS
1/32" D. WIRE L/G STRUT
ENGINE FIX PLATE
FIREWALL
A
B
C
TOP (FILL-IN)- 1/32" SHEET
SMALL BRASS HUB BUSHING
1" DIA. HARD RUBBER WHEEL
BOTTOM - 1/16" SHEET
SIDES - 1/32" SHEET
TISSUE COVERED

A leading member of the famous Philadelphia flying brigade, Tony Becker first established a name for himself as an outstanding indoor microfilm man. He was equally successful in the field of outdoor rubber-powered craft. Like many other rubber experts he carried over into Half-A free flight invaluable experience in the development of light model aircraft structures and an exceptional ability in adjustment procedures. Like many another "mike" man, Tony has made his rubber work pay off in victories in the field of free flight.

Wing and stabilizer tip plates coupled with "zig-zag" Warren truss framework on lifting surfaces distinguish this fine Half-A free flight model by one of Philadelphia's most famous designer-flyers; it's a cinch to build.

rudder to slip into place. When the stab is completed, cover it with tissue.

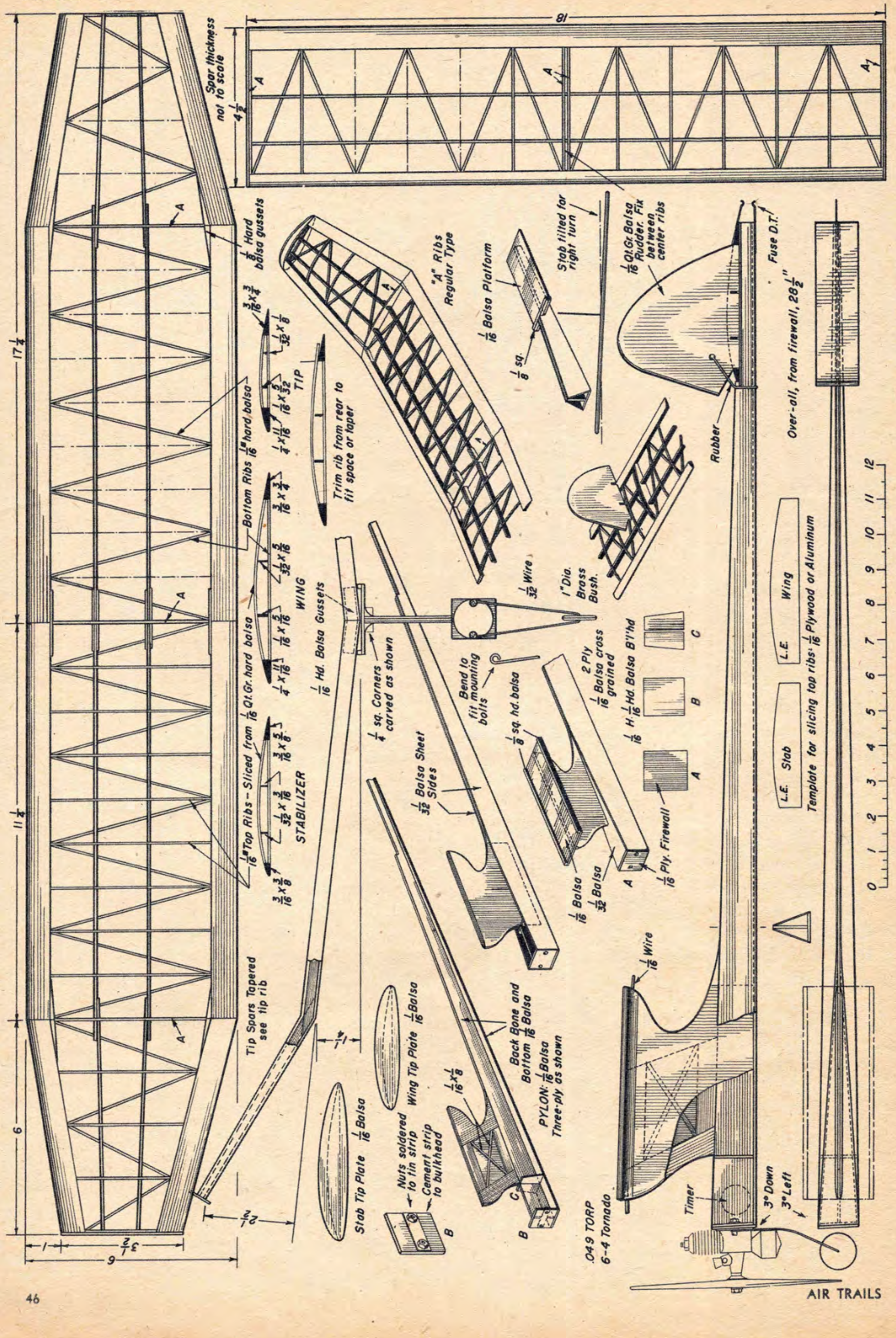
Cut the tip plates out of 1/16" sheet, sand, and glue in place. Cut the tissue from in between the two center ribs. Cut the rudder from 1/16" sheet, sand, and glue in between the two center ribs. The bottom of the rudder should be flush with the bottom of the stab. Dope and fuel proof the stab. If you so desire, paint the wing and stab plates and the rudder the same color as the Jap tissue before you fuel proof.

Cut the bottom of the body and the backbone from 1/16" sheet. Draw a center line down the bottom sheet and glue the backbone perpendicular to it. Cut, fit, and glue the bulkheads in place. Construct the pylon and glue in place. Cut the firewall, drill the holes for the bolts and glue in place. Glue the tin strip with the soldered engine bolts in place. Cover the sides and the top of the body with 1/32" sheet. Work carefully, don't try to rush the job. In modeling haste makes crack-ups.

If you use an Anderson timer (as I did), cut a hole on the side of the body directly behind the firewall and glue in place. Use very hard 1/16" sheet for the wing and tail platforms and glue in place. Cover the body with tissue. Dope and fuel proof the body.

Align the wing and stab as shown on the plans. After the engine and landing gear are mounted, the ship should balance near the trailing edge of the wing. Take the model out on a calm evening before sundown and test it. It should glide in approximately 50-foot circles to the right. I make adjustments by putting clay on the nose and tail if it stalls or dives. Under power the ship should climb to the right in wide circles.

After the glide is satisfactory, start testing the ship by running the engine slowly and then increasing the power slightly each time until it is opened up. Remember that when you give the ship full power, light the fuse if you want to take another flight in the near future.


81
4 1/2
A
Spar thickness not to scale
1/8 Hard balsa gussets
3/16 x 3/4
1/32 x 1/8
1/16 x 5/32
1/4 x 11/16
TIP
Trim rib from rear to fit space or taper
"A" Ribs Regular Type
1/16 Balsa Platform
1/8 sq.
Stab tilted for right turn
1/16 Qt.Gr. Balsa Rudder. Fix between center ribs
Fuse D.T.
Rubber
Over-all, from firewall, 28 1/2"
17 1/4
11 1/4
6
2 1/2
1
3 1/2
6
Bottom Ribs 1/16" hard balsa
3/16 x 3/4
1/32 x 5/16
WING
1/16 x 5/16
1/4 x 11/16
1/16" Top Ribs – Sliced from 1/16 Qt.Gr. hard balsa
3/16 x 3/8
1/32 x 3/16
3/16 x 5/8
STABILIZER
1/16 Hd. Balsa Gussets
1/4 sq. Corners carved as shown
1/32 Wire
1" Dia. Brass Bush.
Bend to fit mounting bolts
1/8 sq. hd. balsa
2 Ply 1/16 Balsa cross grained
1/16 H. 1/16 Hd. Balsa B'l'hd
A
B
C
1/32 Balsa Sheet Sides
1/16 Balsa
1/32 Balsa
1/16 Ply. Firewall
L.E. Wing
L.E. Stab
Template for slicing top ribs: 1/16 Plywood or Aluminum
0 1 2 3 4 5 6 7 8 9 10 11 12
1/16 Wire
Tip Spars Tapered see tip rib
1 1/4
Wing Tip Plate 1/16 Balsa
Stab Tip Plate 1/16 Balsa
Back Bone and Bottom 1/16 Balsa
1/16 x 1/8
PYLON: 1/16 Balsa Three-ply as shown
Nuts soldered to tin strip
Cement strip to bulkhead
B
C
B
.049 TORP 6-4 Tornado
Timer
3° Down
3° Left

"AT" FORUM

Got a question or comment? Here's the spot to air your opinions, gripes, suggestions. Questions will be answered by Air Trails' Experts Advisory Board

More Finishing Tips . . . My models are very strong, but in the process of making my models strong I can't make them nice looking. My hand always seems shaky when I get a paint brush in it. This is getting very embarrassing because we have several beauty and scale modelers here. I believe strength is more important than beauty, but is there some way that would help me make them just a little nicer?

Pat Keating, Yankton, So. Dakota

• Suggest you review "Finishing Your Model," page 30, Air Trails, September, 1951. This picture story contains all the information you need.

Many modelers have difficulty in handling their brushes when applying dope. This is a technique that can only be developed with practice. Here are some hints that may help: Don't scrub the dope in by going back and forth with the brush. Fast drying dopes sometimes are partially dry by the time a stroke of the brush is completed. If you go back over the dry portion you will pick up the outer layer with the brush, causing lumps and blobs.

Fill your brush with dope so that only about half the bristles are wet. Drag brush over bottle rim to take off excess. Dope should not be dripping off the brush when you apply it to the model. Pull the brush over the work evenly, then reverse angle of brush and go back, letting the dope on the other side of the brush flow onto the the work. Make only these two strokes to spread dope. Working quickly, no more than two more light strokes can be made to smooth out the thick spots. Do not scrub the dope in here. This can not be overemphasized. Go on to the adjacent clear area and repeat procedure.

Use dope thinned to about the consistency of light cream. Thick dope will dry very quickly and blob up in just two strokes. Numerous thin coats are better than a few thick coats. Work quickly and do not go over drying dope when you feel the brush drag or stick. Most dopes are of the right consistency as they come from the bottle (a new bottle), but as the dope is used, down to about half-full, the thinners evaporate and the dope thickens. Thinner should then be added.

Be sure to stir bottom of dope bottle up with a stick. When dope sits on dealer's shelf for a while all the pigment settles to the bottom. Stir up thoroughly so that all pigment is mixed with thinner agents on top. *Then shake well.*

Pusher Props . . . I would like some information on where I could get some pusher props for my O.K. Cub (.074).

Tommy Malone, Williston Park, N. Y.

• Pusher props for your Cub .074 could be best obtained by carving them yourself. An X blank ¼" x 1" x 7" will give an ideal prop well suited for your engine. Just carve it opposite to the regular props. Bass wood is easy to carve. We have been unable to locate any commercial left-hand props.

That "First Jet" Question . . . In a recent issue Frank Tinsley stated that the famous German designer, Heinkel, designed the World's first flyable jet plane! Yet I have run across information stating that Italy made the first jet plane. I would like to know who is credited with this honor: Germany or Italy. In an older issue you again stated (Doug Rolf's Air Progress Luftwaffe Story) that Messerschmitt was first to make a jet fighter. Again Italy claims this honor.

Ken Green, Cleveland, Ohio

• The fact that the Germans were first to fly a jet plane was not known until after the war, so well did the Nazis keep their secret. The airplane was a Heinkel He 178 powered by an He S.3 jet engine of around 1000 lbs. of thrust. The airplane was actually finished and ready to fly in 1938, but it was not until August 27, 1939, that the first test flight, of short duration, was made.

In Italy, the first jet-powered airplane, a single-seater Caproni-Campini C.C.1, made a short hop in August, 1940. The project was abandoned in favor of the larger, two-place C.C.2 which gained fame and considerable publicity for being the first jet plane to make a long cross country flight when, on December 1, 1941, it flew from Milan to Rome, a distance of 168 miles, in 2½ hours.

Airmail Stamp . . . My friend and I have been having a slightly heated discussion concerning a certain 8-cent airmail stamp. Pictured on this stamp is a two-engined plane with triple rudders. Was ever a ship like this put on the market?

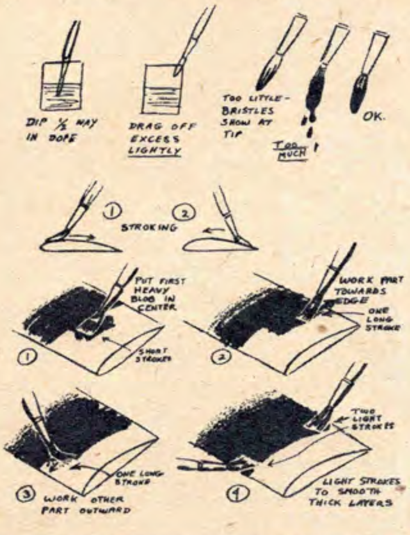
William Weiss, Binghamton, N. Y.

• There was never such a plane as pictured on the airmail stamp. The odd design was made on purpose in order to be fair to all manufacturers of airline transports.

To Attach Aluminum Foil . . . I would like to know the best and easiest method of attaching aluminum foil to a planked model.

Herbert Berkman, Dover, Del.

• After the final sanding has been accomplished apply about two coats of clear dope to the entire model. Sand well when dry. This doping provides a footing for the foil adhesive and prevents the adhesive from becoming absorbed by the raw balsa. We use a slow drying cement for the adhesive. Before cementing in place the foil should be cut out and formed to fit the model exactly. The aluminum should be free from wrinkles before applying to the model because the wrinkles cannot be removed once the foil is cemented in place. If possible cut the foil pieces to agree with the actual paneling of the full scale craft. In order to improve the adhering qualities of the foil it is suggested that you roughen the back of the foil gently with 3/0 sandpaper. The cement will then hold the foil better.



It will be found that compound curvature surfaces are the most difficult to cover, such as wing tips and noses. These may have to be fabricated from many small pieces or slits cut out for proper fitting.

A certain number of tools can be made to work the foil, cut from balsa and sanded into dome shape ends, chisel ends, points and other assorted shapes. These are used mainly to tool the foil during the first fit on the model, without cement. Rivets etc. can be made on the foil when the model is completely covered.

We have found that butt jointing the panels rather than overlapping them improves the model's appearance. We use a fountain pen to mark the foil for cutting, but don't press too hard.

Upon completion a coat of clear lacquer, sprayed on, generally enhances the appearance. Add fuel proofer on g.p. jobs.

Glue for Aluminum . . . I would like to know what kind of glue will hold aluminum and balsa wood together so that neither glow fuel nor anything else will make them separate indefinitely.

Fred Muesegaes, Bloomingdale, Ohio

• The Acorn Adhesives & Supply Company of 1011 11th Street, Los Angeles, California, has a product called Acorn Adhesive #177 which Lew Mahieu and Dick Rigney have used successfully to hold together the metal trailing edges of speed model wings.

Best Dethermalizer . . . Would you please tell me the best dethermalizer I could use on the Fu-Bar with a Baby Spitfire motor?

Samuel Jenkins, Fort Worth, Tex.

• The best dethermalizer to use is all a matter of opinion, but the pop-up or down tailplane seems the best and is very simple to install. A parachute could be used but we have seen ships go up and out of sight with an opened chute behind them. The fused pop down tail will work very good.

Wing Areas/Displacement . . . I am just starting to design my own contest free flights and I would like to know the average wing areas for Eastern flying, for the following displacements: .049, .19 .29 .60.

Donald Brille, Erie, Pa.

• The wing areas of a model for a given displacement depend a lot on the engine and the individual model builder.

Frank Ehling's .049 job at the Nats had only 120 sq. in. of area while Dick Everett's winning model had 212 sq. in. For Class A models of .19 displacement 500 to 600 sq. inches are used on a great number of ships. The Class B jobs of .29 displacement use 650 to 750 sq. inches, while the large Class C of .60 displacement will have from 850 to 1050 sq. in.

One big thing to consider is the strength-weight ratio. Your ship must be strong and it must be close to the required weight to get a fast climb and floating glide. Keep the ships down to weight and clean, and the larger planes will climb as well as the small ones.

Wrinkles in Tissue . . . Could you tell me how to take wrinkles out of tissue after it has been doped? These wrinkles occurred near the leading edge of a wing.

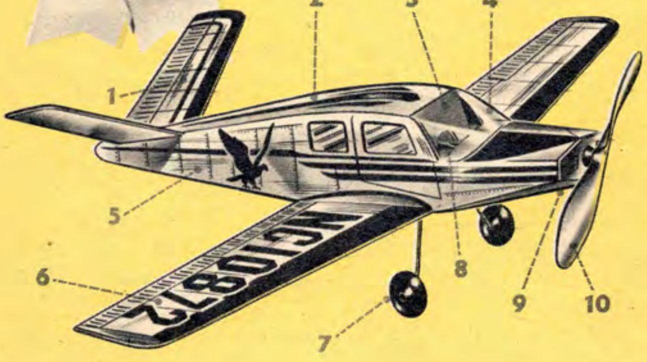
John Ruby, Aurora, Ill.

• Wrinkles in tissue covering may come from several causes. Perhaps the tissue has not been applied with the grain running spanwise.

Water shrinking or wet application of tissue is a must for smooth covering job. Light tissues should be sprayed lightly with an atomizer or insect spray gun after the tissue has been doped on. Dope only the leading, trailing edges and tips so that the tissue can slide over the ribs to smooth itself out.

Heavier tissues such as Silkspan and Sky Sail are designed to be applied wet and smooth results are easily obtained. Dip the tissue into a tray or large pan of water. It is not necessary to soak in the water, just lay the paper flat on the water for a few seconds until it is wet. Then lay the wet paper flat on a towel, fold the towel over the tissue and blot lightly with the flat of your hand. Next, apply the tissue to the work. Dope down the edges and pull gently around the edges, smoothing out the wrinkles. Dope right over the wet paper. The dope will penetrate the paper fibers. Work quickly so that the paper does not dry out before all doping is finished. Let the paper dry thoroughly before applying dope. Use several coats of thinned clear dope rather than few thick coats. Plasticizing the dope with a few drops of castor oil will help. See Sept. 1951 Air Trails, P. 30, "Finishing Your Model," or '52 AT Annual.

Air Trails BLUE



Quicky Bonanza

Newest of Cleveland's pre-fabbed scalers

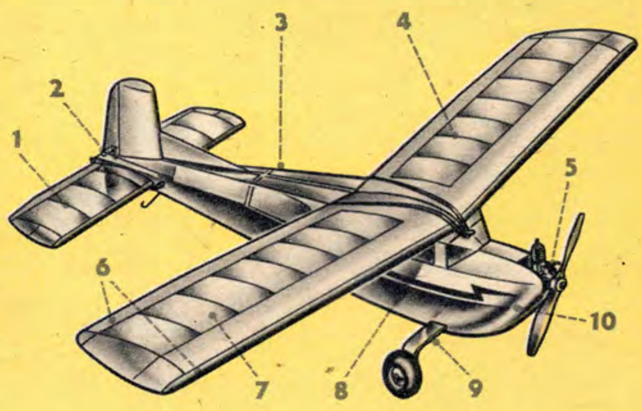
■ That oldtime firm of scale experts, Cleveland Model & Supply Co., Cleveland 2, Ohio, has come up with realistic low-cost models in their rapidly expanding "Quicky" series. Cleveland has models in many price classes from the Super Deluxe 1" scale jobs down to the Simplex line of jet ships. The Quickys now number eight, and there will doubtless be more soon. These kits sell for only 59c and are the ultimate of simplicity.

The Bonanza, our subject right at the moment, has a span of almost 18", and the wood and other parts of the kit are very light in weight, so the builder is certain to have a model that should be capable of several-hundred-foot flights.

Naturally a kit of this type must be super-prefabbed; that is the only way to attain such simplicity and yet be reasonably certain that the large majority of those built will turn in good performance. The makers state that the beginner should be able to put these kits together in an hour, while an expert has done the complete job in 18 minutes! When you look over the parts of the Bonanza, these times seem reasonable.

The wing (6) comes completely cut to size, and it has camber and dihedral formed into it. The upper side is printed with numerals, ailerons and flaps. There are two sheets of 1/16" slotted, die-cut parts, to form the fuselage top (2) and tail (1). This kit should be one of the simplest to build of the entire series, since there is no rudder nor wing struts. Fuselage sides (5) are in one piece, scored to fit around the two main, die-cut, notched formers (3). All these parts are printed for realism. The V-type tail assembly is oversize for good flying qualities.

Though the kit includes formed landing gear wire and neat hardwood wheels (7), it is suggested that these be left off the ship, if top performance is desired. There is an efficient 5" plastic prop (10), and formed prop shaft; hardwood nose button and a rubber loop (8) complete the "powerplant." Also furnished is die-cut plastic windshield (4) and ballast material for trimming (9).



Williamsville Wow

Harold's Live Wire is radio-control trainer

■ The first of a crop of R/C plane kits are now hitting the market, and Dmeco's Live Wire Trainer, produced by deBolt Model Engineering Co., Williamsville, N. Y., is a good example of what the beginner to R/C flying will have to work with.

The $6.95 kit shows the influence of deBolt's long controline experience, for the fuselage is almost completely balsa-covered. The entire radio installation is held in a removable frame that lifts out of the fuselage.

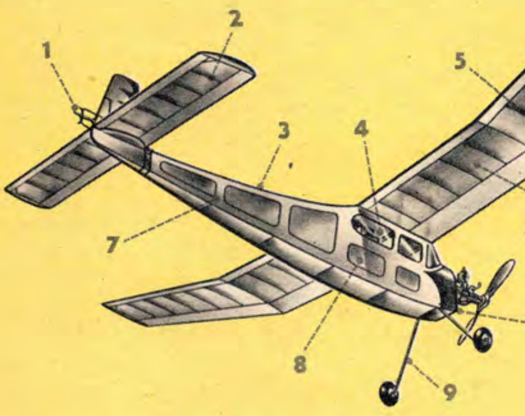
This unit (8) holds the receiver, batteries and escapement, and is not only a convenience, but serves to protect the valuable radio equipment, and to strengthen the fuselage as well. In fact, the fuselage is stressed with this frame in mind, and it should not be omitted. The nose block (10), is ready-shaped. Formers and side sheets (3) are die-cut.

The landing gear is a heavy dural strip (9), which comes ready-bent. Wheels are held by 4-40 screws, and the entire assembly is fastened to a hardwood insert in the bottom of the fuselage with wood screws. A conventional wire tail skid is employed. The engine sits high in the nose, a position that tends to protect it and the prop. Incidentally, the plane is intended for use with any .09 engine; it has been flown mostly with an OK Cub of this size, fitted with an 8/5 prop. Hardwood engine mounts (5) are furnished.

Wing (4) and tail ribs (1) come ready-cut, sanded. The wing is of simple construction, with most of the strength furnished by the sheet balsa covering on the top and bottom of the leading edge. Wing and stab both utilize Silkspan (7). The tail has a symmetrical airfoil and like the wing (6) shaped and notched edges are furnished. The rudder is built up of sheet balsa. Ready-made control linkage (2) is adjustable.

This ship is intended to have a modest climb, a rather steep glide, and the best possible maneuvering qualities. The span is only 48", with 432 sq. in. of area, but the model has been flown very successfully at a loaded weight of 35 oz., which works out to 12 oz./sq. ft., quite a modest figure for an R/C plane.

RIBBON MODELS



Veco Tribe Member

Comanche carving out name for itself

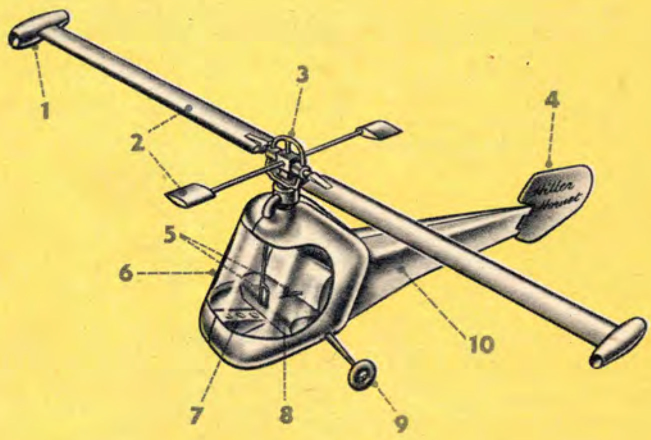
■ A veteran of the contest wars in the "Warrior" series of kits produced by Henry Engineering Co. is the hot little Comanche, a Half-A free flight ship that may also be used for PAA-Load work. The first surprise came when we opened the box and were greeted by bright yellow covering material (6). This means that the builder may use only clear dope on the ship if he wishes to save weight and still have a colorful finish.

The fuselage is what might be called "semi-balsa" construction. The sides may be visualized as solid balsa, but with large cut-out sections (4) for lightness, and there are eight formers, including the plywood firewall. Die-cutting is extensive; the fuselage sides (3) are built up from two sections; slots and tongues assure that the die-cut formers (7) are aligned and held in place while the cement sets. No full-size plans are included for this fuselage work—none are needed since there are many sketches to show proper sequence of the work. The two foremost formers (10) are of ply; one holds the landing gear, the other the engine. The ship is laid out for use with radial mount engines, though beam mount arrangements could easily be made. The steel landing gear wire (9) is formed; 1½" wheels are recommended. PAA dummy occupant is accessible through sliding trap door (8).

Unlike many Half-A ships, this one has a built-up stab, but the rudder is sheet balsa. Wing and stab construction are identical, with a sheeted leading edge for strength. Both leading and trailing edges (2) are tapered and notched for ease of assembly, and may be built over the full-size wing and stab plans. All trailing edge stock is wedge-shaped. The wing has a moderate amount of undercamber; the tail has a flat-bottom lifting section. Ribs (5) are die-cut.

The instructions strongly advise that a dethermalizer be fitted—this looks like really wise advice! The pop-up tail style (1) is suggested.

The Comanche has a span of 36", and wing area of 180 sq. in. It is intended for engines of .035 to .074" displacement.



Scale Copter

Presented by Helicopters for Industry, Inc.

■ This kit is something of a change—it is not for a flying model, yet it's not a solid either. Manufactured by Helicopters for Industry, Inc., of Hempstead, N. Y., it is a fully detailed scale exhibition model.

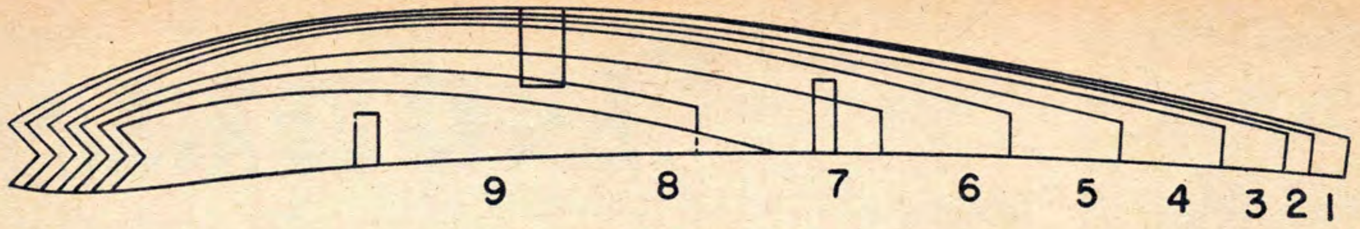
The Hiller Hornet itself is quite a novelty; it looks like the nearest thing yet to that "helicopter for the home-owner" that we were promised back in the mid-forties. The rotor is powered by two ram jets, one at each blade tip. These powerplants produce 31 lbs. net thrust apiece, and the little eggbeater, which weighs only 390 lbs. empty, will lift a useful load of 530 lbs.! It has a top speed of 80 mph and a climb of 1100 ft. per minute. Controls are very simple, as is the entire ship. Needless to say, the Armed Forces are tremendously interested in the ship, and the $2.98 model is available in the dark blue of the Navy, the olive of the Army and "civilian" red.

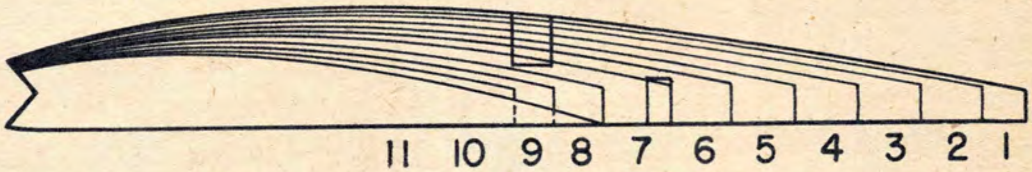
The model is produced in styrene plastic. The various parts are minutely accurate and fit together without the slightest trouble. In assembling a model made from this material, you use only a solvent, not model cement. Several solvents are suggested in the instructions including carbon tetrachloride.

The fuselage (10) is on two half shells, and these parts, like all the others, have moulded-in pins to assure accurate assembly. Movable rudder (4) is hinged; pitch and overhead stick control levers (5) are finished. The cockpit furnishings feature the seat (8), control levers, foot boards and instrument panel (7). There is a die-cut windshield (6) of plastic to complete the "bubble" closing in the pilot.

Two-part molded ram jet engines (1), rotor blades (2), rotor head (3) and stabilizer units are all finished, separate pieces that fit snugly together. Plug-in landing gear legs have wheels (9) that rotate; the gear is of the trike type with the forward wheel sunk into the fuselage.

A base and pedestal of clear plastic form a neat mount. Realism is enhanced by the decals for "Hiller Hornet" and service insignia. Fully assembled, the rotor spans about 17½" and the fuselage with rudder is about 10" long.



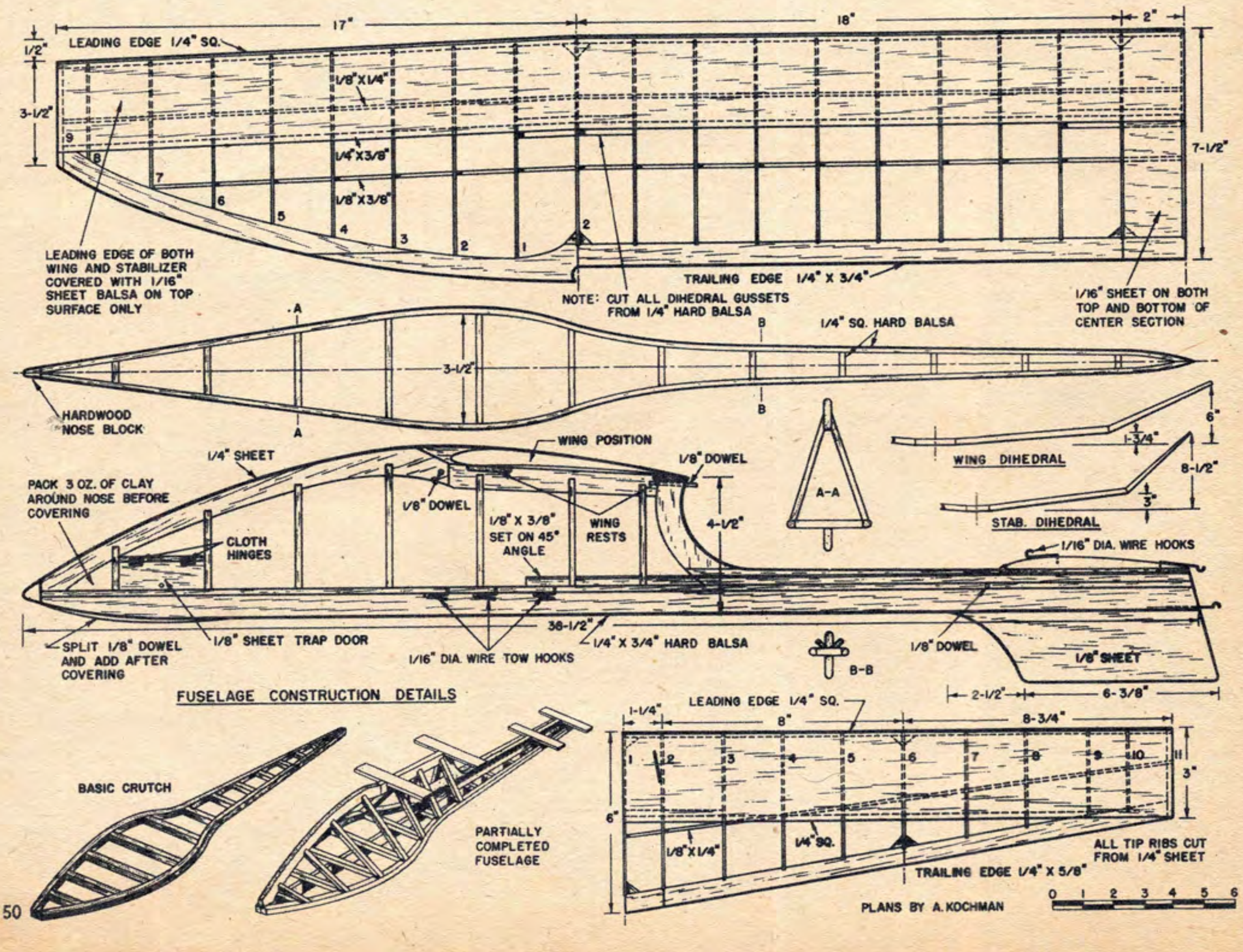

11
10
9
8
7
6
5
4
3
2
1

Full-size wing ribs (above) of which 2 each are required except in case of No. 2—you'll need 23 of those. Note: spar locations are shown for center section only. Full-size stabilizer ribs (right). Note: spar locations shown for No. 1 rib only. George calls this design 'Swami.' He suggests covering it with bright colors for visibility. The original had a red fuse, orange wing and stab.

Designed by GEORGE PERRYMAN, Captain, United States Team, 1951 Wakefield Contest

Perryman's Polyhedral Soarer

■ There have been seven of this series built by the author, with six being lost. Out of the 23 major contests in which *Swami* has been entered, it has 18 firsts, 3 seconds, and 2 third places to its credit. It has been a National record holder with an official time of 15:02. At three Southeastern Championships held in Atlanta, Georgia, the ship won first place three times.


17"
18"
2"
1/2"
LEADING EDGE 1/4" SQ.
3-1/2"
1/8" X 1/4"
1/4" X 3/8"
1/8" X 3/8"
7-1/2"
9
8
7
6
5
4
3
2
1
2
LEADING EDGE OF BOTH WING AND STABILIZER COVERED WITH 1/16" SHEET BALSA ON TOP SURFACE ONLY
TRAILING EDGE 1/4" X 3/4"
NOTE: CUT ALL DIHEDRAL GUSSETS FROM 1/4" HARD BALSA
1/16" SHEET ON BOTH TOP AND BOTTOM OF CENTER SECTION
A
B
1/4" SQ. HARD BALSA
3-1/2"
HARDWOOD NOSE BLOCK
A
B
WING POSITION
1/4" SHEET
1/8" DOWEL
PACK 3 OZ. OF CLAY AROUND NOSE BEFORE COVERING
1/8" DOWEL
1/8" X 3/8" SET ON 45° ANGLE
WING RESTS
4-1/2"
A-A
CLOTH HINGES
WING DIHEDRAL
6"
1-3/4"
STAB. DIHEDRAL
8-1/2"
3"
1/16" DIA. WIRE HOOKS
38-1/2"
SPLIT 1/8" DOWEL AND ADD AFTER COVERING
1/8" SHEET TRAP DOOR
1/16" DIA. WIRE TOW HOOKS
1/4" X 3/4" HARD BALSA
B-B
1/8" DOWEL
1/8" SHEET
FUSELAGE CONSTRUCTION DETAILS
LEADING EDGE 1/4" SQ.
2-1/2"
6-3/8"
1-1/4"
8"
8-3/4"
1
2
3
4
5
6
7
8
9
10
11
3"
6"
BASIC CRUTCH
PARTIALLY COMPLETED FUSELAGE
1/8" X 1/4"
1/4" SQ.
ALL TIP RIBS CUT FROM 1/4" SHEET
TRAILING EDGE 1/4" X 5/8"
0 1 2 3 4 5 6

PLANS BY A. KOCHMAN

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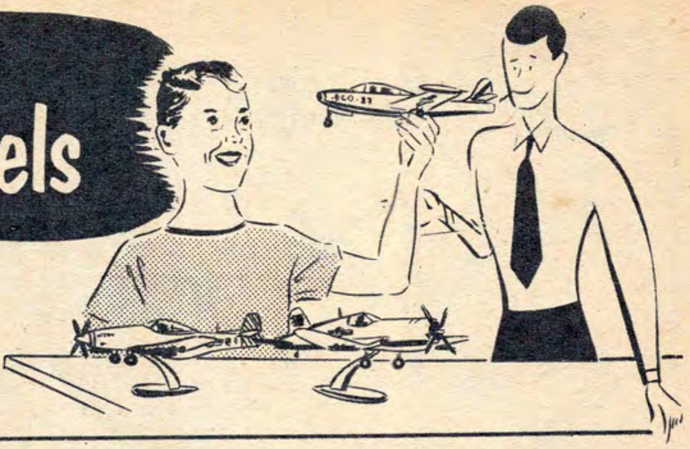

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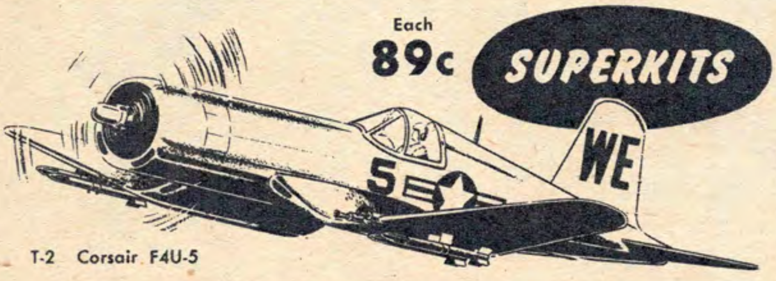

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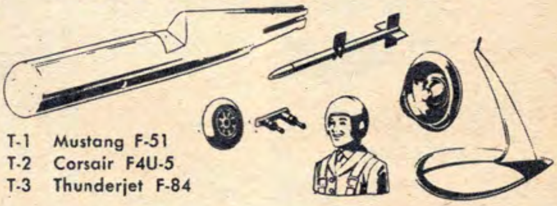

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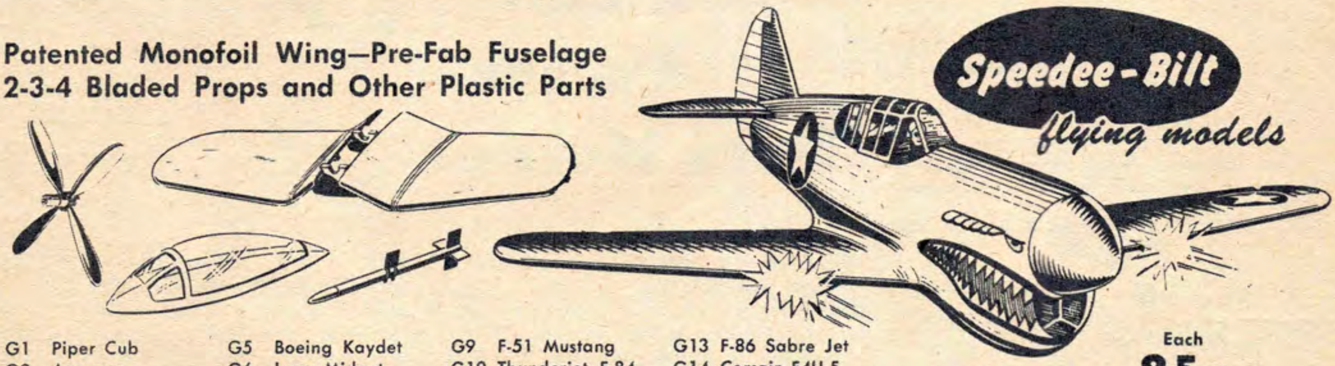

G1 Piper Cub	G5 Boeing Kaydet	G9 F-51 Mustang	G13 F-86 Sabre Jet
G2 Aeronca	G6 Long Midget	G10 Thunderjet F-84	G14 Corsair F4U-5
G3 Monocoupe	G7 Cessna	G11 Navion	G15 Warhawk P-40F
G4 Ercoupe	G8 Spad Pursuit	G12 Hellcat	

Warhawk P-40F

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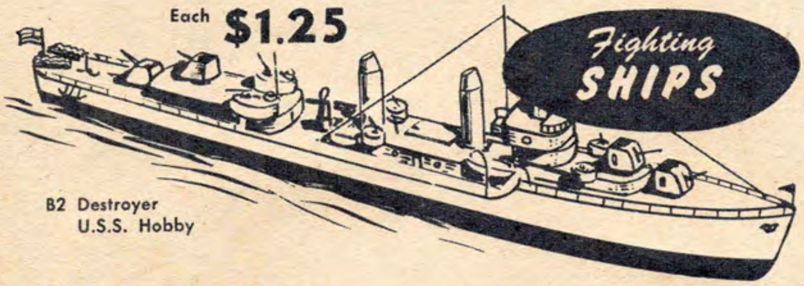
Fighting SHIPS



B2 Destroyer
U.S.S. Hobby

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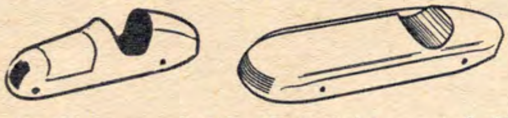
Structure Parts — Decals

B1 Landing Ship LST 608
B2 Destroyer
U.S.S. Hobby
B3 Cruiser
U.S.S. Chicago
B4 Battleship
U.S.S. Missouri
B5 Carrier
U.S.S. Shangri-La

Shaped Bodies — Monogrill Front End
Metal Axles — Rubber Wheels



R1 Hot Shot	$ .70	R3 Mono-Jet	$ .85
R2 Terra-Jet	1.00	R4 Midjet	.85
B6 Aqua-Jet	.60		

Power with Jet Cartridge

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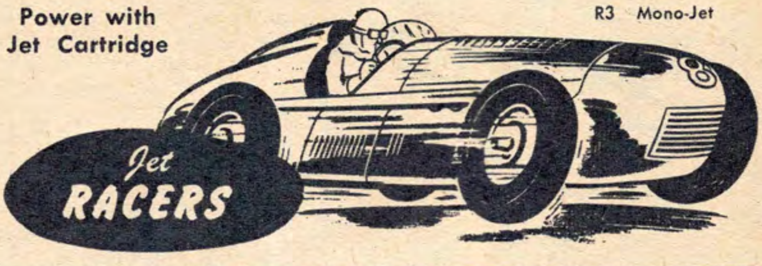

R3 Mono-Jet

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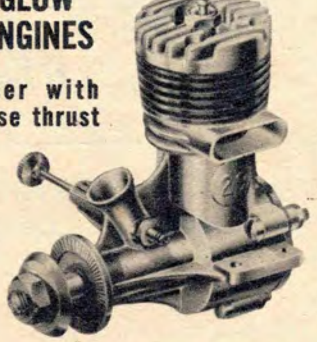

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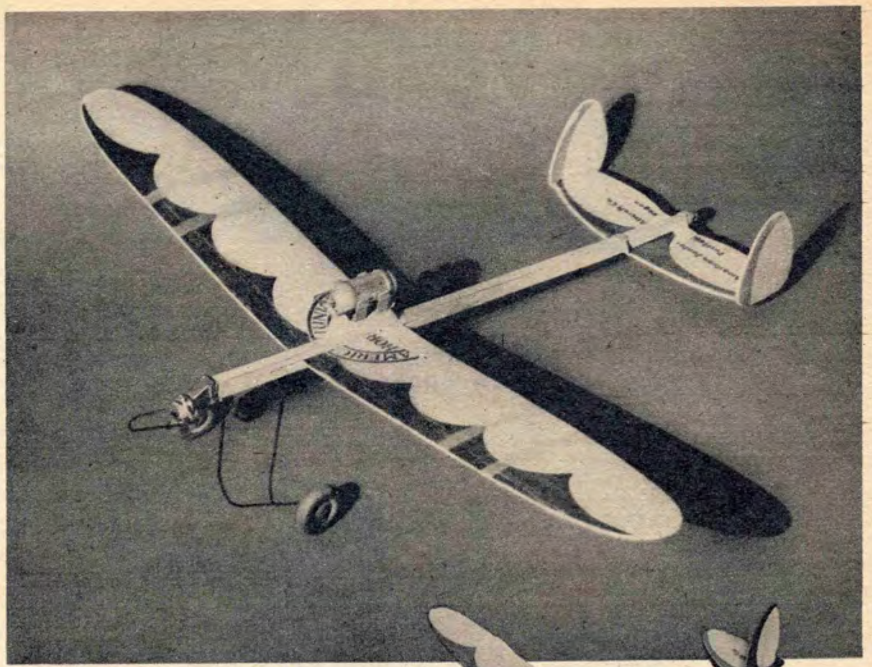


You Can Jet Power Jim's Hornet

When the Jetex 50 power unit first became available, we were in a rush to get it flying, and hated to spend time building a plane for the purpose. Casting about for a ready-to-fly test bed, we thought of a job that had been a willing guinea-pig several years ago for the tiny CO_2 engines—one of Jim Walker's Hornets would be our victim! For those few who don't know, the Hornet is an R.O.G. stick rubber ship, all balsa and of about 17½" span.

The prop and rubber motor were quickly removed, and to make it look more "jetty" the landing gear wires were bent back, lowering the nose somewhat. The jet unit was mounted above the wing; a 3/8" high block of hard balsa served as a stumpy pylon, and the jet outlet was 5" back from the plane's nose. The Jetex mounting clip was screwed to the pylon with a strip of asbestos between.

We added twin rudders to the tips of the stab, but the jet unit definitely *does not* spout fire when in operation, and the original single rudder would do very well.

The only other alterations were to decrease the negative tail angle with a scrap of 1/16" balsa between stick and rear edge of stab, and to wrap wire solder around the prop hanger until the hot rock glided smoothly.

Now for the breathtaking trials: a full charge was loaded in the Jetex, a nearby cigarette was snatched to light the fuse, and we awaited developments, with model-heaving arm cocked like a Roman spear thrower. Heeding instructions, we waited until it was really going strong (steady hiss), then launched it in a gentle climb. Away went the Jet-Hornet, gaining speed until it was climbing at an angle well past 45 deg.; it continued this way for what seemed an age, with no deviation or tendency to loop. Subsequent flights were all repeat performances.

We've since flown the craft on many occasions; once we had the chance to demonstrate it to genial Jim Walker himself. Jim was greatly surprised and pleased at the performance of our Jet Hornet. Try one yourself, or better still, get the gang together for a real jet-powered competition.

From ALFA to ZULU

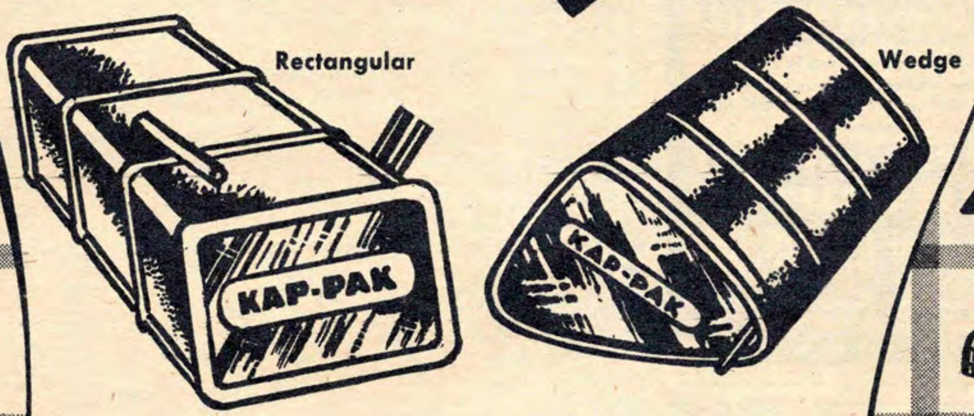
Wonder how many of our pilots and radio-operator readers have learned the new phonetic alphabet which has been devised for general aviation use?

A—ALFA
B—BRAVO
C—COCO
D—DELTA
E—ECHO
F—FOXTROT
G—GOLF
H—HOTEL
I—INDIA
J—JULIET
K—KILO
L—LIMA
M—METRO
N—NECTAR
O—OSCAR
P—PAPA
Q—QUEBEC
R—ROMEO
S—SIERRA
T—TANGO
U—UNION
V—VICTOR
W—WHISKEY
X—EXTRA
Y—YANKEE
Z—ZULU

KAP-PAK

PRECISION PARTS

Lower Prices



GAS MODEL TANKS

- SOLDERED INSIDE AND OUT
- EVERY TANK GUARANTEED LEAKPROOF
- PRICED FROM 39c to 69c
- DIE STAMPED NON-CORROSIVE PLATED STEEL
- WILL NOT DISCOLOR FUEL

Insist on **KAP-PAK** *Model Accessories*

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2208 NORTH MILWAUKEE AVENUE • CHICAGO 47, ILLINOIS

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In all recent tests, Francisco Fuels have received the highest all-around rating for purity and performance — and the least amount of detriments.

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BLUE BLAZER

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RACING FUEL LABORATORIES

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NEWS! E-Z-JUST
Minimount

• Test and break-in stand that clamps engines up to .19 displacement in a few seconds! Made of selected hardwood with adjustable clamps and locking pins. Only **85c**

STANDARD E-Z-JUST

test and break-in stand. Locks up any engine in a few seconds. Holds it from pulling out while "revving up." **$1.50**

Handiest Case Ever Designed!

E-Z-OPEN SMALL PARTS CASE

• Easy-view clear plastic case with 4 compartments with individually opening and latching covers. Prevents mixing parts or spilling entire contents. Size approx. 7" x 2". **50c**

FAMOUS E-Z-JUST PLASTIC CONTROL HANDLES

• Choice of "Standard" 330 lb. test cable leader or "Hot Rock", minimum test 150 lbs. .... ea. **85c**

AT LEADING DEALERS EVERYWHERE
MFG. BY **PHIL-LEYS**
CHEEKTOWAGA 25, N. Y.

The Civil Air Patrol Cadet

Lt. Norman Anderson, of the Sioux Falls, S. D. CAP Squadron, on flood reconnaissance over Sioux River. Fifteen craft flew daily to help direct evacuation of 100 families.

An Electronics Career Course is now being completed for the CAP Cadet program. Here is a start for any young man—or young woman—in a field still fast growing after 30 years of expansion and still only on the threshold.

The 2-year course is planned to fit the regular 2-hour meetings of the Cadets plus home study from popular texts. Jack Walbert, a Philco field service engineer, has spent several months with the communications officers at CAP headquarters to complete the outline.

The training begins with the simple math necessary for an understanding of electronics; then a series of classroom experiments and lectures on radio fundamentals and circuits. Practical maintenance and operation of radio transmitting and receiving equipment will follow.

Since CAP has the largest radio network in the world, with 9,500 fixed and portable stations expanding to a goal of 20,000 by 1954, all of the State Wings are well equipped with professional-type sets for practice. The frequent alerts, maneuvers, and actual emergency missions such as flood patrol and search lend realism to the work.

Beyond the Cadet course, further courses will be prepared for the adult CAP. You could follow it for years and still be learning.

Since electronics specialists of all sorts are in great demand in the armed services, a graduate of CAPC who volunteers or is drafted will have a fair chance to be assigned to this career field. Advancement is rapid to those who make good. All of the services have excellent radio, radar, and electronic schools.

Technicians trained in the service are in demand for well-paid jobs in the industry, including home-town opportunities for radio and TV servicing. Of course the CAP does not turn out finished radio engineers. But it offers a mighty attractive beginning.

Cadet Reporters are being appointed by CAP Wings to get news of Cadet activities in each state. Local Squadrons will do well to appoint their own Cadet reporters and see that they send material each month to the Wing, whence it will be forwarded to National Headquarters.

Here are a few tips to make your reports eligible for consideration:

1. Write legibly, typewrite if possible.
2. Remember the field for which you are writing. The fact that Bill Jones is competing for a place on the national drill team is of local interest but a national publication can't include the names of all the aspirants. *Would it interest you to read the item you have in mind if it were about someone in another area rather than someone you know? Apply that test.*
3. Pictures must be clear and sharp, and should show something of general interest rather than just another squad marching or just another airplane. Be sure to mail them with stiff cardboard to prevent creasing which may spoil them.
4. Send to Cadet Reporter, your Wing Headquarters. He or she in turn will forward to CAP National Hq., marked "For Air Trails".
5. We are especially interested in model planes. We go to press on the 15th of each month. So be certain to get your stories to National several days before that date. Otherwise they will miss the forthcoming issue and may lose timeliness.

Aviation Cadet Applicants are in urgent demand for Air Force flight training. Increased emphasis on the importance of the CAP Cadet program is resulting from this shortage, coupled with the need for thousands of volunteers each month both to expand the Air Force and to replace the men released from service.

The age requirement for aviation cadets has been reduced from 20 to 19, and educational requirements also have been lowered.

In the last war, CAP helped the Air Force out of a serious shortage when more planes were rolling off assembly lines than there were (*Cont'd on page* 64)

Join the Civil Air Patrol—the civilian auxiliary of the U. S. Air Force. Cadets are 14½ to 17; Senior members are 18 and over.

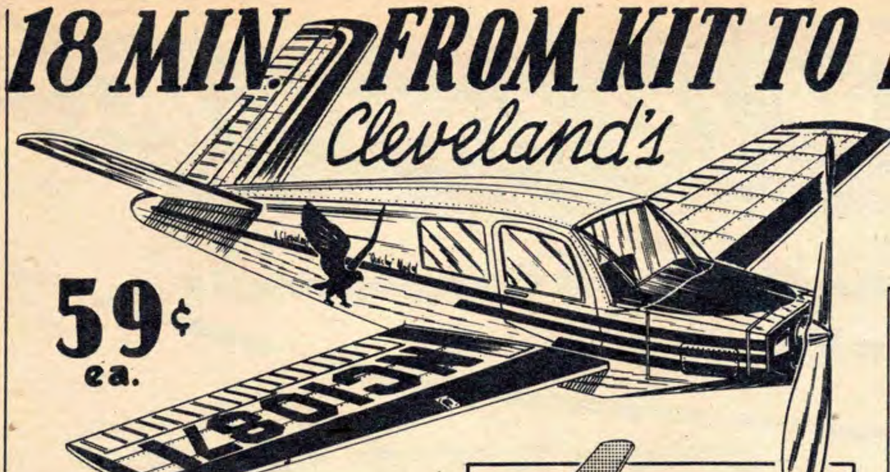
C. A. P. NEWS c/o Air Trails
304 East 45th St., New York 17, N. Y.

I'm interested in more information on the CAP and would like to hear from my nearest unit.

Name..............................
Address..............................
City (and zone)..............................
State.................Your Age......

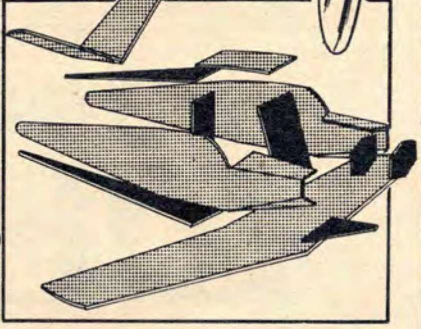
Air Trails, July '52

18 MIN. FROM KIT TO 1st FLIGHT!



Cleveland's "Quicky" BONANZA

59¢ ea.

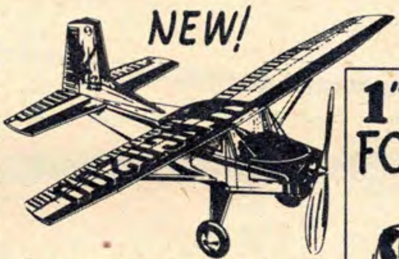


Only 12 separate balsa parts to cement together! It's the most easily built scale job you've ever flown!

QUICKY SETS ARE THE MOST SIMPLE, THE MOST REAL, AND THE BEST FLYERS OF THEIR KIND

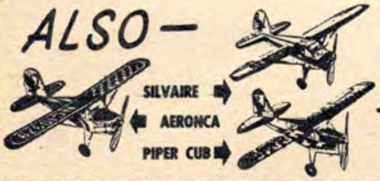
Remember these "Quicky" facts! They are engineered to fly several hundred feet. **They can be assembled in an hour on your first try, and have actually been put together in 18 minutes** — There is no cutting, no tissue covering, and no painting to do, you merely assemble, then fly them — All of their few parts (only 13 to 21 parts) are predecorated, diecut, and each one interlocks with the next, so that a snappily finished model grows into shape before your eyes, even if you've never built a model in your life. Just compare the superior job of predecorating we've done, with any others! (all Quicky sets except jets now include rubber). All you need is a batch of Cleveland "Quicky" sets (get them all — you won't regret it) and a tube of cement.

NEW!

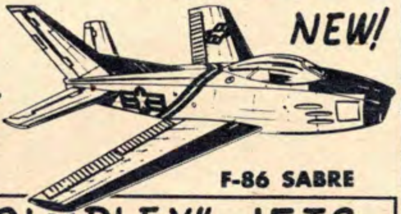


LUSCOMBE SEDAN

ALSO—



NEW!



F-86 SABRE

STILL MANY GREAT BUILT-UP, PRINTED BALSA DESIGNS FOR THOSE WHO WANT TO PUT REAL CRAFTSMANSHIP INTO THEIR MODEL BUILDING!

30" P-40 WARHAWK $1.50

24" F-86 SABRE $1.50

30" GRUMMAN PANTHER $1.50

30" GLOBE SWIFT $1.25

30" ERCOUPE $1.25

30" F-80 SHOOTING STAR $1.50

SPAD XIII
Span 19" $1.75

24" F-51 MUSTANG $1.50

30" STINSON VOYAGER $1.25

FOKKER D-7
Span 17¾" $1.75

LUSCOMBE SEDAN
Free-Flight-Control-Radio
Giant 76" Span $7.50

36" F-61 BLACK WIDOW $2.25

LUSCOMBE SILVAIRE
43" Span $3.00

STINSON
Flying Station Wagon
43" $5.50

PLAYBOYS
C. Sr. 70" $6.00

THREE SWELL "SIMPLEX" JETS

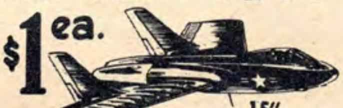
RUGGED, REALISTIC, AND PROFESSIONALLY PREFABBED, THESE NEW "SIMPLEX" KITS ARE MASTERPIECES OF PREFAB FLYING SCALE — QUICKLY, EASILY ASSEMBLED.

All the curved balsa parts are diecut, and they interlock without fail, assuring fast, pleasant construction. Included are such popular features as shaped, notched, wing edges - formed celluloid bubble canopies - three-color decals - quality tissue - preformed landing gear wire - turned wheels - and many other outstanding features such as a handy "notcher" (A Cleveland development) which makes smooth work of the few small notches that cannot be diecut. Furthermore, the directions for assembly have been organized in step-by-step order, and are illustrated clearly with sketches. Everything needed to complete the model is in the kit, with the exception of liquids.

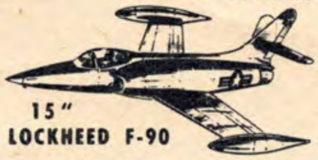
Those of you who have built "IT" kits in the past will really take to the "Simplex" kits too, as they carry the ideal of realism and flight engineering into the realm of prefabrication. Simplex models are much bigger than the spans (15 to 20") imply, as their fuselages are huge compared to the spans.

These 3 sleek jets are among Uncle Sam's most talked about, most promising fighting jets, and you'll see them in the headlines, and in the newsreels every day. Ask your local hobby dealer right away, for the biggest dollar's worth of model yet to be seen! — He'll show you the "Simplex" kits!

$1 ea.

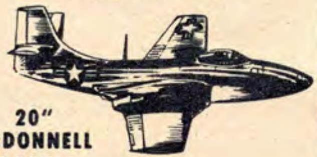


15"
VOUGHT CUTLASS



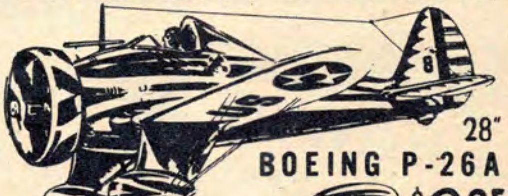
15"
LOCKHEED F-90

- DIECUT CURVED BALSA PARTS
- SHAPED WING EDGES
- FORMED PLASTIC CANOPIES
- INTERLOCKING TYPE CONSTRUCTION
- THREE-COLOR DECALCOMANIAS

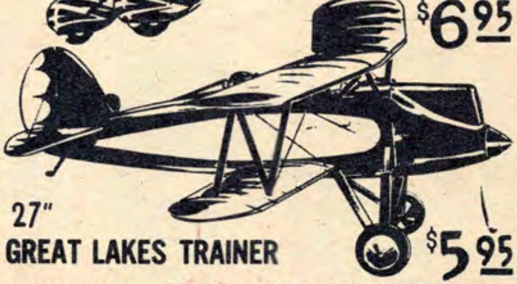


20"
McDONNELL BANSHEE

1" SCALE PREFABS FOR STUNT & SPORT



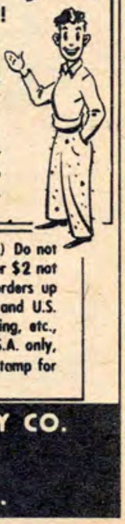
28"
BOEING P-26A
$6.95



27"
GREAT LAKES TRAINER
$5.95

BUILD THESE, AND BE PROUD OF THEM!

• Almost one sq. ft. of decals in P-26A! • Shaped, notched leading edges • Tapered, notched trailing edges • Preformed wire • EVERYTHING diecut! • Giant cowl turning (P26-A) • Preshaped wing struts • Easy-interlocking bulkheads and keel construction (or notched sheet sides) • Routed-out wheel shoes • Tails are diecut sheet • Handy Bulkhead notcher in ea. kit • Stunt and sport rib (symmetrical) • Many other outstanding features.



WHEN ORDERING BY MAIL: (If your dealer is out of stock) Do not accept substitutes for C-D's but order direct. Orders under $2 not accepted. (No C.O.D.'s.) Include 35c pack.-post. to all orders up to $3.50, over $3.50 add 10%. (This includes A.P.O. and U.S. Possess.) Foreign customers add 10% for special handling, etc., in addition to pack.-post. charges. Special Delivery in U.S.A. only, 35c extra. Ohio residents: add 3% Sales Tax. Send 3c stamp for illustrated airplane circular.

CLEVELAND MODEL & SUPPLY CO.
4508G2 Lorain Ave.,
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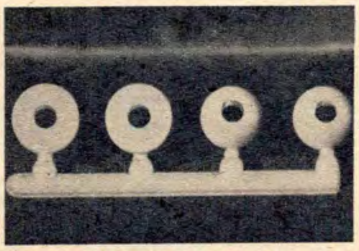
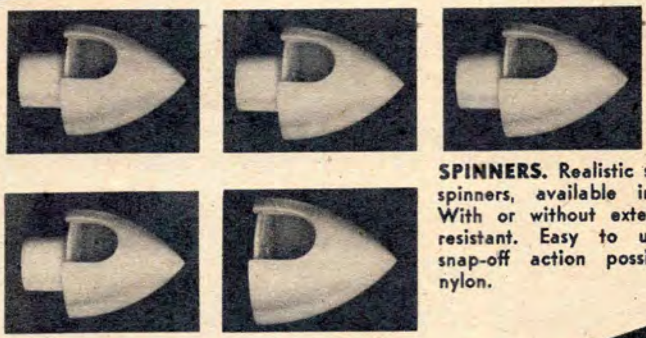
NOW FOR THE FIRST TIME!

Here Are All The Latest Developments of Sullivan Research....



WHEEL COLLARS. Now, at last, here are positive-locking wheel collars that look real, are easy to use, and guaranteed not to come off. Push on with your fingers, pull off with pliers.



SPINNERS. Realistic snap-on nylon spinners, available in five sizes. With or without extension. Crash-resistant. Easy to use. Snap-on, snap-off action possible only in nylon.

Of course, patents are applied for on all the new Sullivan developments.

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HAW-KI HOBBY SUPPLY CO.
DEPT. AT-3 523 WEST 4TH
Davenport, Iowa

R/C

(Continued from page 10)

be available. All types of radio-control activity will be covered, including planes, boats and cars. Write to P.R.C.S. for info.

Contests. National Capitol Meet on June 15th at Andrews Air Force Base near Washington lists R/C Exhibition, but Walt Good advises this will be bonafide competition, flown under modified AMA rules. They also hope to hold Record Trials for the F.A.I. R/C Duration mark (now held by the Russians—of course—at 23 minutes). If anyone wishes to try for this, please send advance notice to Dr. Good, 9802 Howard Ave., Bethesda, Md.

Cedar Rapids, Iowa, will hold 7th Annual Pavlis Memorial Meet including R/C. Write to Paul Marchal, Jr., 1837 8th Ave., Cedar Rapids. Date is June 22.

Also June 22, Screamin' Demons 6th Annual F/F. Meet will have their usual R/C event. C.D. is Bob Buragas, 255 Laurel Ave., Arlington, N. J. Meet at Hicksville, L. I.

June 28 & 29, Michigan State Meet (for residents of Mich., and Windsor, Ont. only) at Detroit, will have R/C. C.D. is F. Sposite, 9900 E. Jefferson, Detroit.

July 6 at Baltimore, Md., Annual Greater Baltimore Championships, with R/C included. Clayton Morgan, C.D., 3801 W. Saratoga St., Baltimore 29.

And here are a couple of more meets to watch for. There will be an AMA AAA meet at Minneapolis-St. Paul on Aug. 3; it is mainly for PAA-Load, but R/C demonstration flying will be held. Walt Billet, 2548 Nicollet Ave., Minn., can give details. Another AAA meet is the 6th Annual All New England on Aug. 31 and Sept. 1 at Providence, R. I. There will be an R/C event. Dope from A. C. Bergeron, Richard St., Seekonk, Mass.

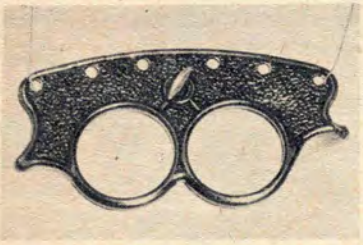
The Model Yacht Racing Assoc. of America held its first R/C boat race last fall at Seattle. There were only three entries, but a lot of enthusiasm was shown, and the next race will see real competition. The race for the Walker Trophy (that's Jim Walker, of course) was won by Ted Houk. Competition for beginners using rudder only is planned for this season. Any of our R/C readers who want to get into the fun with boats may get information from Mr. Houk, 6019 51st Ave., N. E., Seattle 4, Wash.

This year may see the first flying for the Lawrence Walker Radio Trophy, to be given for the winner of a speed race, probably around two pylons. To make things interesting, there is a $500 cash prize connected with this trophy. Final rules have not been set up as yet, but if any club or contest manager would like to include this event, full details may be had from Mr. Walker, c/o A. J. Aircraft Co., Portland 12, Ore.

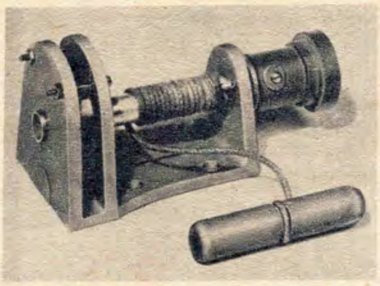
Commercial News. We have a new release in the Air Trails Plan Service that should interest the R/C fraternity. The original prints of Mac's Robot soon sold out, and it has been reprinted as #R-101. As a bonus we include a full reprint of the 27 mc. equipment that was in the 1952 A. T. Annual (with illustrations much enlarged), the improved triode 3A4 transmitter circuit, and the A. T. Beep Box. This is a real R/C classic—price is 35c.

Many of the more advanced R/C experimenters are dabbling with receiver circuits of all sorts. And many of them find that there isn't much information available on super-regenerative circuits. We recently heard of a book (thanks to Bob Lange) devoted solely to this subject. It is definitely not for beginners, but covers thoroughly the theory of super-regenerative oscillators.

The book, available from Cambridge University Press, 32 E. 57th St., New York 22, N. Y. is labeled "Super Regenerative Receivers," has 170 pages and sells for $4.75. It includes a valuable bibliography of articles on these receivers, and while the use of such receivers for control purposes



½ A HANDLE. Only in nylon is this compact, strong handle possible! Extra strength molded where it is needed. A real dandy!



STARTER. Here's enough power to start even a pressure job . . . yet is easy to use and low in price. Eliminates boosters. Batteries last longer. Saves its slight cost within several months.

NYLON BELLCRANK. Here's a bellcrank that can't remain bent out of shape. Molded nylon means no sharp, abrasive edges to cut or wear flexible cable.

And the best part is . . . there are many more outstanding accessories to come. Accessories like the amazing new nylon fuel pump . . . faster, more positive action, longer lasting, corrosion-proof. Look for all these, plus a continuing supply of outstanding new accessories by Sullivan Products . . . at your favorite dealer.

PYLON BRAND

Sullivan Products

214 W. Dauphin Street • Philadelphia, Pa.

as we require them is mentioned only briefly, a reader who knows his way around circuits will find much of value.

Berkeley Models, West Hempstead, N. Y. can now supply a completely wound iron core coil for conversion of their 50 mc. receivers (or others of similar design) to 27 mc. With complete instruction sheets on the conversion, the coil will retail for $2.50.

Control Research, Box 9, Hampton, Va., can supply component kits for the Annual transmitter and receiver, at $3.95 and $5.25 respectively. All parts are included except the tubes, crystals, trans. case and sensitive relay. They can furnish the tubes, and also meters for receivers and transmitter. Here's a good source for those hard-to-get items, needed to get going on 27.255 mc. Same concern advises they again have the popular subminiature potentiometers they sold previously, but the new ones will be 25,000 ohms; price, $1.50. C.R. has plenty of RK-61's and XFG-1's.

We have heard from quite a few readers who would like to try proportional control but who can't build the necessary actuator, for one reason or another. One of our correspondents, George Sweet, 549 McKinley Ave., Beloit, Wis., has worked out a simple design that he has been using with some success. This little unit weighs only 1.35 oz. and has a center-tapped coil, so that only a single 3 V. battery is required. Current drain is about 175 ma., and the torque is ample for ships up to 6 ft. or so. George has offered to build these actuators on order for $8.75.

Polk's Hobbies, 314 5th Ave., New York 1, N. Y., are now supplying the E. D. clockwork escapement, which can be adapted for either 2- or 4-arm operation. This escapement has a very compact spring for driving power, and will make 50 complete cycles of operation (that is, from neutral through right, left and back to neutral) with one winding. It weighs 2¾ oz. and is beautifully built; size is about 3" x 1¾" x 1⅜". The coil is wound for 4½ V. and current drain is 300 ma. There are several points of adjustment to vary the amount of throw, and the action may be taken off at any of three different points. For those who prefer very long flights with lots of rudder movement, this unit looks like a natural for such purposes as elevator or motor control. The price is $11.50.

—HOWARD G. MCENTEE

F. C. C. FIELD OFFICES

Radio control modelers can obtain the Overprinted 505 Station Permit Registration Forms for License Free 27.255 mc. flying by contacting their nearest Federal Communications Commission office. The field offices are as follows:

ALABAMA—419 U. S. Court House & Custom House, Mobile 10.

ALASKA—Room 52, Federal Building, Anchorage; Room 6, Shattuck Building, Corner Third and Seward, Juneau.

CALIFORNIA—539 Federal Building, Temple and Spring Streets, Los Angeles 12; 323-A Customhouse, San Francisco 26; 15-C U. S. Customhouse, Union and F Streets, San Diego 1.

COLORADO—521 New Custom House, Denver 2.

DISTRICT OF COLUMBIA—415 22nd Street, N.W., Washington 25 (Corner 22nd and E).

FLORIDA—312 Federal Building, Miami 1; Room 410, Post Office Building, Tampa.

GEORGIA—411 Federal Annex, Atlanta 3; 214 Post Office Building, York and Bull Streets, Savannah (P.O. Box 77).

HONOLULU, OAHU—(Hawaiian Islands) Room 609, Stangenwald Building, 119 Merchant St.

ILLINOIS—1300 U. S. Court House, 219 South Clark Street, Chicago 4.

LOUISIANA—400 Audubon Building, 927 Canal Street, New Orleans 16.

MARYLAND—508 Old Town Bank Building, Gay Street and Fallsway, Baltimore 2.

MASSACHUSETTS—1600 Custom House, Boston 9.

MICHIGAN—1029 Federal Building, Detroit 26.

MISSOURI—3200 Federal Office Building, 911 Walnut Street, Kansas City 6E.

MINNESOTA—208 Federal Courts Building, 6th and Market Streets, St. Paul 2.

NEW YORK—328 Post Office Building, Ellicott and Swan Streets, Buffalo 3; 748 Federal Building, 641 Washington Street, New York 14.

OREGON—307 Fitzpatrick Building, 917 S.W. Oak Street, Portland 5.

PENNSYLVANIA—1005 U. S. Customhouse, 2nd and Chestnut Streets, Philadelphia 6.

PUERTO RICO—323 Federal Building, P. O. Box 2987, San Juan.

TEXAS—329 Post Office Building, Box 1527, Beaumont; 500 U. S. Terminal Annex Building, Corner Houston and Jackson Streets, Dallas; 324 U. S. Appraisers Stores Building, 7300 Wingate Street, Houston 11.

VIRGINIA—402 Federal Building, Norfolk.

WASHINGTON—808 Federal Office Building, 1st Avenue and Marion, Seattle 4.

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19" SPAN FOR ½A ENGINES

Probably the Snappiest ½A Stunt Ship Ever Designed - Check these "★" STUDDED features

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★ Bellcrank and Elevator Horn
★ Shaped & Notched Leading and Trailing Edge
★ Preformed Landing Gear
★ Assembled Fuel Tank
★ Liquid Cement
★ Fuel Line
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★ All Parts Diecut
★ All Hardware Furnished

$3.45 at your Dealer

If no dealer convenient, mail orders will be filled postpaid-Tennessee residents add 2% sales tax

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R/C FLIERS

NOW! A COMPLETELY NEW AUTOMATIC DIRECTIONAL CONTROL SWITCH!

ONE YEAR GUARANTEE

X'MTR LEADS
L
N
R
4⅜" L x 3" W x 1⅛" D

E-Z AUTOMATIC RADIO CONTROL SWITCH
Pat. Pend.

FEATURING:

1. No sequence to remember.
2. Successive turns at your command.
3. Turn lever to right for Right Turn.
   Turn lever to left for Left Turn.
4. Built in emergency switch for Single Pulses.
5. No motors, batteries, gears, or escapement change.

MODEL 102—2-ARM NEUTRAL OFF ESCAPEMENTS
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Dope Can

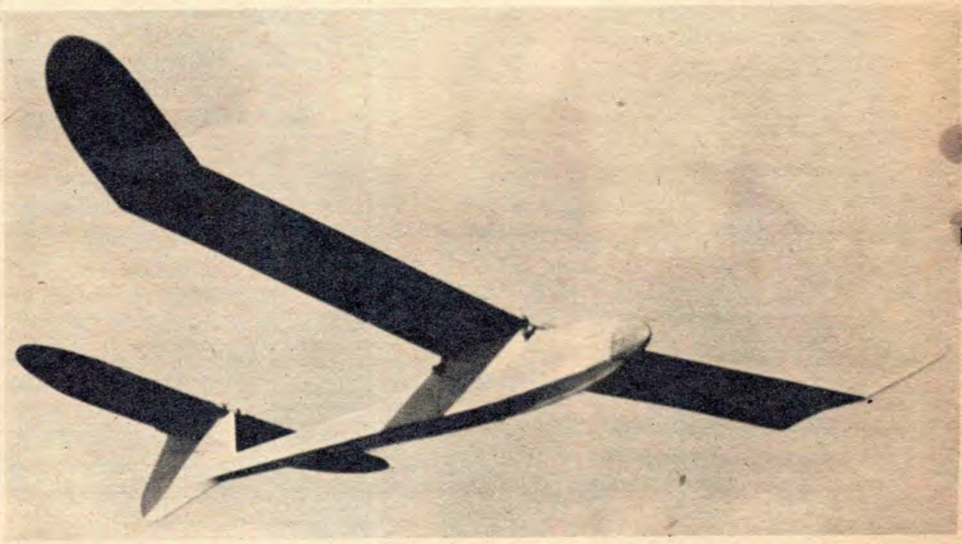
News, Views, Comments and Photos from Model Clubs and Enthusiasts in U. S. and Overseas

■ Would you call this, "signs of the times"? One hobby shop owner reports many of his neighborhood's ex-modelers are back in the swim. Some had dropped out "permanently;" others had gone into model railroading. But now more and more of the old-timers are showing up again at the model flying field. The reason? One guess: radio control.

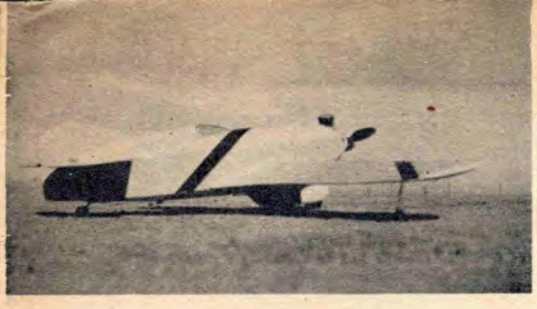
Elsewhere in this issue you'll find lots of good background information on the '52 Nats by our own Dick Everett. It's the kind of news we've always hoped to get in advance each year on the National meet but seldom have. Here we want to list briefly the flying schedule and a few interesting points. Sunday, July 27, will be devoted to advance registration *and test flying.* Joy, oh joy! Monday will see all indoor events at the Santa Ana Air Base, 9 to 9. Distance is about 13 miles from the home site of Los Alamitos NAS; the Navy will furnish transportation to those desiring same.

Tuesday—radio models, Class A speed, free flight B, towline glider and unlimited rubber. Wednesday—R/C, Class B speed, Half-A F/F, hand-launched gliders. Thursday—R/C, Class C speed, precision aerobatics, ROW F/F, PAA Rubber PAA-Load. Friday—R/C, Class D speed, Class A F/F, Wakefield rubber. Saturday—R/C combat, Class C F/F, Half-A PAA-Load, team racing, Half-A F/F Scale. Sunday—R/C, Class A&B PAA-Load, control line flying scale, Navy Carrier event, jet speed, PAA Clipper Cargo.

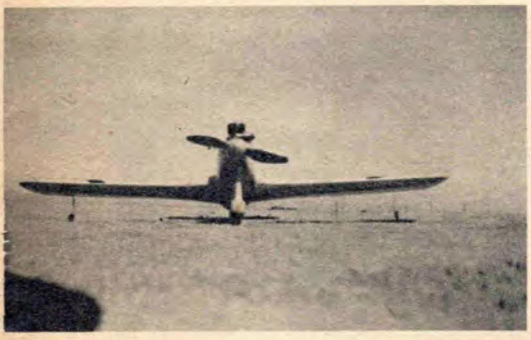
It all adds up to 28 events. The victory banquet will be held Sunday



A/2 Nordic sailplane built by Helmut Meyer, Bremen, Germany, spans 62 inches, has 41 in. overall length. Total wing area is 505 sq. in., weighs in at 16 oz. No reason why we here in America shouldn't adopt the Nordic as our single sailplane class and thus get into the international swim. Rules are available from the AMA.

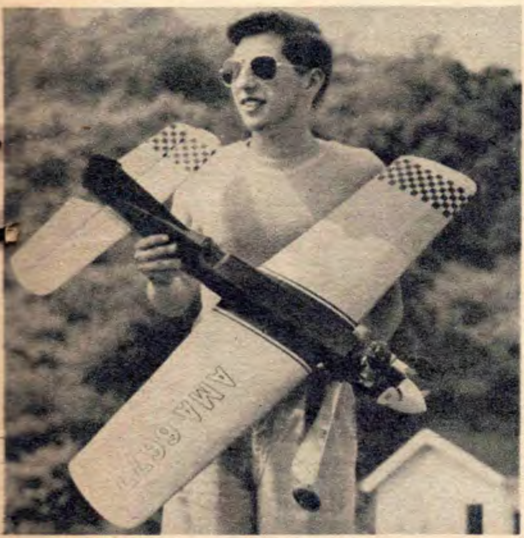


That's Francis (Strong Man) Gilliam, Buffalo, N. Y. and his O&R 23 powered Super Brigadier (left). Above and below is M. E. Rebhan's X-RT original, from Denver, with Anderson .64. Spans 48 in.; single nose wheel, two wing wheels. Semi-stunt; shockless gear so must be flown in. Large side area keeps it out on lines. Really different!



night at which time all trophies will be awarded. Plans are being formulated for the best banquet ever. The location for the indoor events is one of the best ever! That's certainly welcome news to America's small but hardy band of microfilm devotees. The Santa Ana hangar has a floor area 1,100 feet long and 200 feet wide with the ceiling clearance better than 187 feet. All openings can be closed tight enough to insure that no air currents are inside the building. (None, that is, except the hot air from the experts!)

An area for test flying will be allocated at Los Alamitos. It will be available just for that purpose all during the meet! Processing will be available the night before except in the case of indoor models. Workable retrieving (*Continued on page* 78)



Sport-stunt original by John A. Zammikiel, Indiana, Pa., flew 4 years on ignition, is now gp'ed. Spans 40", 31" length, 40 oz. (all planked), Atwood .60J

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$2.95
Air Trails Blue Ribbon Model. A replica of this world-famous biplane. Complete with stamped metal cowl. .045 to .099 Engines.

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Here's real value . . . plus! A control-line plane that suits your flying tastes as well as your pocketbook. Carved balsa fuselage. "1/2A" engines.

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48" Span. Free flight or U Control

Improved with new 2¾" alum. spinner and 3" Veco alum. disk semi-pneumatic rubber wheels. Planked type body, parts printed on balsa, and all parts. Set $9.00

REPUBLIC P47D GAS MODEL

35¾" span. ⅞" scale. Length 30½". One-piece moulded, clear plexiglas cockpit enclosure. 2½" scale alum. disk rubber wheels. Body planking full size plans. Uses B or C motor. Set $5.95

9' TAYLOR CRAFT GAS MODEL

9 foot Span. Can use Radio control. Set has 36 ready cut wing ribs, cut plywood body formers, 16" carved prop., tail wheel unit, 2 full size plans, printed balsa, silkspan, etc. Uses "C" type motor, single, twin, or 4 cyl. motor. Set without motor or wheels, postpaid............ $17.50

Extra pair of 4½" airwheels, $3.00

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41" span. U Control B or C Motor. Scale model of 1949 Thompson Trophy winner. Set has 2½" scale rubber tired alum. disk wheels 4¼" aluminum cowl, body planking, moulded, clear plexiglas cockpit enclosure, plastic spinner, etc. This is one of the finest equipped models in the world. Const. set $6.75

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Elf 1-3 h.p. 4¼" wide. Price $49.50

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WESTERN Roundup

■ The coming Nationals continues to be the big topic of conversation out here. One reason for this is the new method to be used to select the so-called "National Champ."

Selection of the National Champ has long been a tough chore. This year's method will be entirely different, being more of a decathalon event, since a fellow must fly in three catagories. In an effort to select a National Champion for the 1952 meet that will produce the best all-around flyer of the 21st Nationals, the following rules have been agreed upon by the 1952 Nationals Contest Committee:

All events will be split up into three categories: 1. Gas-powered control line events. This will include every such event listed on the program. 2. Free flight gas events, all classes also. 3. Non-gas powered free flight events, which includes all indoor and outdoor events. Radio control can be included in either control line or free flight, since the models are controlled and are also free flight.

To go along with the accepted practice there will also be a Junior, Senior and Open Champion as there has been in the past.

To compete for the above and the Grand National Championship the contestants must indicate upon their entry blanks the events they desire to compete in for "champ" honors, and they *must process these models before any flights are taken with the exception of indoors.* All models so processed will be affixed with a special decal on each component part. The designation by the contestant of these models does not exclude him from competing in any or all other events.

The point system used this year sounds a little complicated but in reality it seems the only fair way to assign individual points. It is as follows: Top time, speed or points in any event will be given 100 points. From this top performance to the very last place worth one point, each will be judged as a comparative performance. This will be simply computed through the use of graphs so that each and every contestant will know just how good a performance his plane did in direct comparison to the best guy at the Nats.

Using this system, the fellow who is beaten by one-fifth of a mile per hour or by (*Continued on page* 68)

Can you recognize that engine there on the left? It's a GHQ that's been modernized by Ed Slobod. Has a glow plug and takes Ed's free flight up nicely. The gentleman above is Will H. Winston who has been designated Chairman of the Central Committee representing the Long Beach, Calif., Exchange Club, sponsors of the '52 National Championships. Below is J. M. Bollinger who was unanimously chosen by the Southern Calif. Model Association to officiate as Contest Director for the Nationals.

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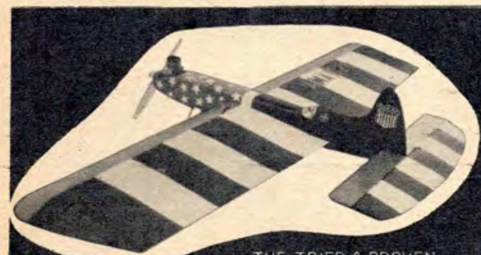

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HERE IS REAL FUN
WITH 1/2A TEAM
RACING!
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The Pulitzer

(Continued from page 23)

drop out because of engine trouble. An amusing incident in connection with the first race was when the surveyors miscalculated on the length of the course; Moseley's winning average was blazoned as 178 mph across the headlines of the country! There were some red faces among the promoters several days later when a recheck showed the course to be only 38.7 miles around instead of 44.

The next contest was run as the climax event of the 1921 International Air Races at Omaha, Nebraska, on November 3rd. This time the course was laid out on a 50-km. triangle with one 12-mile straightaway. The Army, a little embittered by their experience with the Verville, made only a feeble gesture with a converted 400-hp Thomas-Morse monoplane.

But the Navy contracted with Curtiss to build them two special pursuit-type racing biplanes, to be completed by August. Lessons learned with the bulky Verville were well applied by Curtiss and they came up with a much cleaner design weighing only 1,740 lbs. empty. To complete the combination, a special direct-drive version of the Curtiss C-12 engine was built, with high-compression heads, dual carbs, developing 405 hp. Though considerably less powerful than the old Verville, and still retaining the Lamblin-type underslung radiators, the new Curtiss was good for around 190 mph, compared with some 180 for the Verville.

For some reason the Navy decided to withdraw from the entry list at the last minute, but Curtiss was given permission to race one of the CR's privately, to be flown by Bert Acosta. On race day, six planes faced the starter's flag, including two Thomas-Morse pursuits,

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and a terrific little sports-racing version of the W. W. I Curtiss triplane fighter called the "Cactus Kitten." This job had been custom built by Curtiss for a private buyer and had even slightly more power and speed than the new Navy racer!

However, the pilot, Clarence Coombs, was unfamiliar with the ship and lost a lot of time on the turns, letting Acosta breeze through to win at 176.7 mph. Coombs' average was 170.3 mph. Two others finished, including 160.7 mph for the Thomas-Morse MB-6, and two dropped out.

The 1921 Pulitzer proved a great victory for the advocates of the small, lightweight, moderately powered plane. It headed the pursuit trend definitely downward in weight and wing area. But where was the monoplane? Several monoplanes had started those first two races, but they didn't appear to have any margin in speed. So it was in 1922 that the first serious attempt was made to develop a fast racing monoplane.

Extensive racing programs were put in hand by both the Army and Navy for the 1922 contest, including the development by Curtiss of a new high-compression engine, the D-12, giving 465 hp. The Navy, in addition to "cleaning up" the 1921 Curtiss racers with wing surface radiators and the installation of the new 465-hp engine, commissioned for two new Wright biplane racers and two Bee Line low-wing monoplanes with retractable landing gear. The Wrights were almost as big as the old 1920 Verville, but got a speed of 195 mph from 600 hp. The Bee Lines on the other hand, weighed only 1,600 lbs. and got 190 mph from 330 hp.

The Army pinned its hopes on two new-type Curtiss biplanes, similar in layout to the 1921 Navy racers, but considerably smaller and cleaner and mounting the 465-hp engine. In addition, the Army contracted for three monoplane racing types: The low-wing Loening R-4 had a core radiator and fixed gear and mustered 190 mph with its 600-hp Packard engine. The Verville R-3 came up with a retractable gear and got 191 mph on 380 hp. The Thomas-Morse R-5 was a radical all-metal high-wing "parasol type" monoplane with struts and bracing all over the place—she got 188 mph on 600 hp.

So what was probably the most interesting and fiercely fought Pulitzer of all came to bat at Detroit on October 14, 1922, with no less than six brand-new racing types at the starting line. The race was the climax of a three-day air meet celebrating the founding of the National Aeronautic Association which, incidentally, took control of the Pulitzer from then on.

When the dust cleared, the score sheet showed a resounding victory for the small, thin-wing biplane type over the monoplane. Lt. Russ Maughan won at an average of 205.8 mph in one of the new Army-Curtiss R-6 racers, with the twin model coming second at 198.8 mph, the best lap for either of them being 216 mph. These terrific little ships carried the new-type brass wing surface radiators, had only 138 sq. ft. wing area, and were hitting over 220 mph on the straightaways over Lake St. Claire.

Third and fourth place went to the two revamped Navy-Curtiss racers, their fastest lap being at 195 mph. The best the monoplanes could do was to get fifth place at 181.0 mph with the Verville R-3. The others lapped no better than 170 mph. The big Navy-Wright biplane lapped at 186 mph and looked good for fifth place till it dropped out with engine trouble.

So the monoplane proved to be a fruitless experiment in 1922. There were two main reasons: (1) The crude cantilever construction methods used at that time required very thick airfoil sections which had more overall drag than the thin biplane wings with wire and strut bracing, and (2) all the monoplanes used core or Lamblin radiators, which had much more drag than the Curtiss surface units.

To be continued in a subsequent issue.

MODELPLANE CONTEST CALENDAR

Most directors are invited to list forthcoming competitions in this column. Advise Air Trails 90 days in advance to do the most good for your meet. If any area restrictions on entries, be sure to state. Address of contact man is same city as site of meet unless otherwise specified.

June 14-15—Atlanta, Ga., Southeastern Championships. S. B. Felker, 1162 Emory Dr., N. E.

June 14-15—Salt Lake City, Utah, "Active Modelers" meet. Norbert Baumgartner, 756 Parkway Ave.

June 14-15—Woonsocket, R. I., Jr. C. of C. Flying Fair. T. W. Wenclawik, 204 Lincoln.

June 15—Elizabeth, N. J., Union City Plymouth Dealers meet. S. B. Koch, 113 Brighton Ave., Perth Amboy, N. J.

June 15—Syracuse, N. Y., Plymouth meet. S. R. Kalin, 1235 S. State St.

June 15—Washington, D. C., Nat. Capitol Model Air Show. Washington "Star," Room 724.

June 15—St. Paul-Minneapolis, Minn., Talent Scout Meet. P. J. Ring, 4150-29th Ave., S., Minneapolis, Minn.

June 15—McMinnville, Ore., Stardusters F/F contest. Robert Kern, 1906 N. Portland Blvd., Portland, Ore.

June 15—Rockford, Ill., Aero Aces free flight meet. H. E. Heminger, 836 Diamond Ct.

June 21-22—Hartford, Conn., "Times"-Plymouth Dealers' meet. "Times," Prospect St.

June 22—Spartanburg, S. C., All-Dixie Championships. H. R. Arnold, 149 Princeton.

June 22—Lebanon, Pa., F/F and C/L. K. F. Carpenter, 751 N. Hanover.

June 22—Ft. Wayne, Ind., F/F and C/L. Walter Krull, 414 E. Washington.

June 22—Flint, Mich., Exchange Club meet. R. J. Dear, 720 Harrison.

June 22—Jacksonville, Fla., C/L meet.

June 22—Hicksville, L. I., Screamin' Demons Half/A. Flying Scale & Rubber meet. Bob Buragas, 255 Laurel Ave., Arlington, N. J.

June 22—Red Lodge, Mont., Montana-Wyo. Airscrews' meet. C. J. Erck, Box 214.

June 29—Cedar Rapids, Iowa. John Pavlis memorial meet. P. M. Marchal, Jr., 1837-8th Ave., S.W.

June 28-29—Detroit, Mich., State Exchange meet (includes Windsor, Ont.) F. P. Sposite, 9900 E. Jefferson.

June 29—Midland, Mich., Plymouth Dealers meet. Truman DeVore, 4114 Elm Court.

June 29—Worcester, Mass., Plymouth Dealers Meet. Alfred Dion, 23 Sunny Hill Dr.

June 29—Endicott, N. Y., Triple Cities Meet. R. C. Scudder, 72 Johnson Ave., Binghamton, N. Y.

June 29—Miami, Fla. C/L meet.

June 29—Birmingham, Ala. No data.

June 29—Long Island, N. Y., Gas Monkeys' Fifth Annual. E. V. Roff, 56 Stuart Ave., Malverne, N. Y.

July 4—Peoria, Ill., Central Ill. Model Air Circus. Morgan Baldridge, 327 S. Washington.

July 4—Anchorage, Alaska. Annual meet. R. C. Seigelkoff, Box 959.

July 6—Daytona Beach, Fla., F/F meet.

July 6—Baltimore, Md., Greater Balto. Championships. Clayton Morgan, 3801 W. Saratoga.

July 6 & 13—Salt Lake City, Utah, Plymouth State meet. J. H. Douglas, 133 E. 2nd South St.

July 9-15—Amarillo, AFB, Tex., Air Force World Wide Championships. Lt. H. A. Vogler, Jr.

July 12—St. Petersburg, Fla., C/L meet.

July 13—Fall River, Mass., Plymouth Dealers meet. D. P. Turner, 246 Oliver.

July 13—Joliet, Ill. Pending.

July 13—Wilmington, N. C. E. Carolina U/C Championships. W. M. Peck, Jr., 214 Walnut.

July 13—Winston-Salem, N. C., Plymouth Dealers-Skywriters F/F meet. Ed Aldridge, 853 Watson Ave.

July 13—St. Paul, Minn., Plymouth Dealers-Hobby Retailers meet. Harold Queen, Rm. 201, 1586 University Ave.

July 13—Brantford, Ont., Kloudbusters F/F. rubber & glider contest. W. H. Allison, 47 Nelson St.

July 13—Montreal, Que., Sleepless Knights' meet. Cliff Morris, 2166 Demaricourt St.

July 13—Johnville, Pa. (tentative). Phila. Plymouth dealers' qualifications and regional meet. Matt Sullivan, 214 W. Daupin, Phila. 33.

July 20—Falls Church, Va., C/L meet. W. S. Hinman, Jr., 410 Great Falls St.

July 20—Williamsville, N. Y. F/F and C/L. Flying Bisons, 79 Cobb St., Tonawanda, N. Y.

July 20—Greenfield, Mass., Kiwanis Meet. B. H. Williams, 27 Southampton Rd., Westfield.

July 20—Allentown, Pa., Plymouth Dealers meet for Pa. flyers. Pending. W. P. Hartzell, 335 Juniper St., Quakertown, Pa.

July 27—Hagerstown, Md., C/L meet. Pending. John Young, Box 691.

July 27—Hanover, Mass., Rockland Kiwanis Meet. E. G. Dolby, 33 Exchange St., Rockland.

July 27—Portageville, Mo., Rotary-Plymouth meet. W. C. Kroeger, c/o Dorris Motor Co.

July 28-Aug. 3—Los Alamitos N.A.S., Cal., National Meet.

Aug. 3—Waynesboro, Pa., Exchange meet. J. A. Otter, Rt. 3.

Aug. 3—Cleveland, Ohio, Lake Erie GMC Half-A free-flight meet. J. W. Grega, 10422 Gay Ave.

Aug. 3—Minn. & St. Paul, Minn., A.T.C.H.R. PAA-Load meet. W. H. Billett, 2548 Nicollet Ave., Minneapolis, Minn.

Aug. 3—Waynesboro, Pa., Exchange-Plymouth U-Control meet. J. A. Otter, Rt. 3.

Aug. 10—Hamburg, N. Y., Cloud Busters' meet. Mrs. Robert Burdick, 108 Maple Ave.

Aug. 10—Dekalb, Ill., Cloud Dusters' Flying Circus. Dutch Hess, 137½ E. Lincoln.

Aug. 10—Lancaster, Pa., MAC meet. Pending. Paul Liller, 426 W. Chestnut.

Aug. 20-25—Detroit, Mich., 6th International Plymouth Model Plane Contest. Contact your nearest Plymouth Dealer.

Aug. 24—Moline, Ill., restricted meet for Iowa-Ill. AA members. Jack Stucker, 4105 14th Ave., Rock Island.

Aug. 24, 30, 31-Sept. 1—Salt Lake City, Utah, Annual Douglas Trophy Contest. Pending. J. H. Douglas, 133 E. 2nd South St.

Aug. 31-Sept. 1—Pawtucket, R.I., 6th All-New England meet. A. C. Bergeron, 55 Ricard St., Seekonk, Mass.

Aug. 31-Sept. 1—Crossville, Tenn., 7th State meet. Roy A. Stone, Jr.

Sept. 1—Far Hills, N. J., Lions Club C/L meet. C. Norman Welsh, Dumont Rd.

Sept. 7—Lumberton, N. C., Prop Snappers contest. R. C. Stone, 1906 Rowland Ave.

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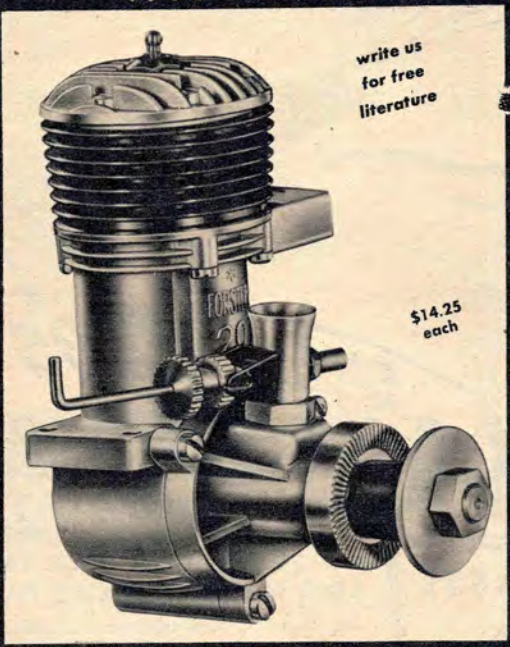

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SUPER FLASH

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SUPER FAST CLIMB

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CLASS ½ A

Trophy-snatching performance combined with easy-to-build construction! Streak features die-cut fuselage sides and ribs, shaped leading and trailing edges. Flexible crash-proof motor mount and booster pop-up dethermalizer are the latest Jasco developments.

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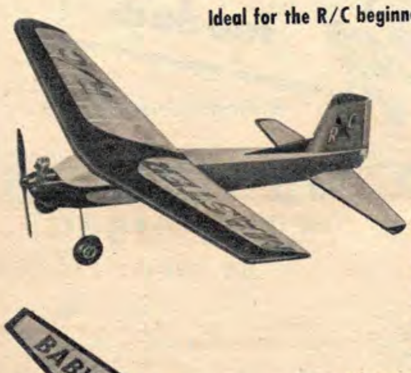
Ideal for the R/C beginner.



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. . . Heavy sheet balsa fuselage sides . . . Rubber cushioned motor unit to reduce engine vibration. Kit includes die-cut ribs and bulkheads, shaped firewalls, formed landing gear, shaped leading and trailing edges and pre-shaped 3/16" sheet balsa fuselage sides. Span 49", area 480 sq. in. Power: .09 with pencells or throttled down .19 engine.
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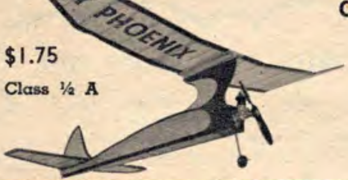

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$2.25

½ A PAY LOAD

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Air Adventurers

(Continued from page 16)

futures, that have been dumped into the collective laps of industry, the services and pilots.

Navigation, for example, is now more than ever a highly complicated science due to the speed of jet flight. No longer can a pilot (of a jet plane) under visual flight rules and flying contact, merely note railroad crossings, bends in highways, or the "red farm by the river," as check points. They slip below too rapidly to find on a map and then check for location below.

New computors have had to be devised to handle the higher speeds and more emphasis has been placed on instrument flying rather than on following the "iron compass" of the railroad lines.

Even the control tower personnel have had to learn to handle jet aircraft with new techniques and consideration.

New aerial gunnery techniques have had to be worked out, for closing with an enemy at a combined speed of perhaps well over 1,000 miles an hour, has tossed old time piston-powered plane gunnery into the empty shell hoppers for good. Newer faster-firing guns have had to be developed along wtih faster acting gun sights for greater accuracy.

The aviation mechanic is fast leaving the days of the greasy rag and Stillson wrench behind him. He must now be a combination mechanic, electronics engineer, thermodynamicist, and electrician all in one.

The future of the modern aviation mechanic is a perpetual and permanent one of ever mounting responsibility and technical demands. Those of you Air Adventurers who have your sights set upon being a jet engine mechanic or technician have selected a well-insured future with many side streets of specialization.

Even new emergency techniques and equipment became a must when jet flight became a reality, and since that day not so long ago, such equipment and techniques have tried hard to keep up with the speed of the new aircraft. New escape chutes have been devised, new parachutes, new ejector seats, and new free-fall techniques have become a must with the boys of the experimental departments. Each phase of these is a newly created job project in itself requiring skilled men, daring pilots, and new research in unexplored fields.

Experts in thermodynamic science are needed to help develop the turbine blades and shafts to function properly in the fiery blast of the jet engine itself. Metallurgists at once become vastly important for the exacting perfection of heat resistant tail pipes, after-burners, and the "fire pots" of the engines themselves.

The greater speeds required for almost every phase of jet flying has at once made the electronic engineers key men, for theirs is the job of perfecting the equipment to handle the split-second controls and reactions of instruments that speed requires.

Jet speed is demanding better-than-before of everything and that demand is the creator of a host of new futures in many old and some new professions in aviation for you Air Adventurers. With the advent of jet-powered flight your importance to aviation's future, and also, aviation to YOUR future took on a new meaning.

C. A. P.

(Continued from page 54)

qualified pilot trainees to fly them.

CAP beat the bushes. The Cadet program pre-trained thousands of aviation cadets. In many cases, this head start enabled flight trainees to make good where otherwise they might have flunked ground school.

Summer Program of the Cadets, while school is out and regular weekly classes are suspended in most areas, will feature the encampments for more than 9,000

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Cadets and supervisors at more than 40 Air Force bases. The first camps begin in June.

In July, the National Aviation Education Workshop will begin for a month's training at the University of Colorado, under CAP sponsorship. More than 100 teachers are expected from all parts of the country through scholarships by CAP State Wings.

July will start also the international cadet exchange for which CAP National Commander, Maj. Gen. Lucas V. Beau, has paved the way by his annual tour among 16 exchange countries. Reports from the states indicate keen interest in selecting candidates for final choice of some 150 U. S. Cadets to be sent among these foreign nations.

On August 2, the National Drill Competition will be held at Mitchel AFB, N. Y. On August 23, the International will be held between the U. S. and Canada at the Minnesota State Fair with grandstands to seat 40,000 spectators.

On August 19-31, CAP will be co-sponsor, with the Texas Soaring Association, of the National Soaring Contest at Grand Prairie, Texas. Because most of the nations visited in the Cadet exchange are active in gliding and soaring, interest has been stimulated in doing more about this means of flight in our country.

At the National Air Races in Detroit, Labor Day week-end, Cadets of the Michigan Wing again will be responsible for handling the crowds, parking all cars, and being generally helpful. In many areas, this work has become routine for CAPC for such events as open house at airports on the annual Armed Forces Day.

The Record for CAP last year, now that reports are added up, was more than 2 million man-hours of training by Cadet and Senior members. About three-quarters of this was in Cadet classrooms for aviation education.

A total of nearly 48,000 hours of flight orientation—airplane rides—was given to more than 28,000 Cadets. You don't stay grounded in this flying corps.

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ALIGNS ITSELF As You Build It!

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24" Wing Span

$2.75

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"B"	$6.50	$2.75
"C" & "D"	$6.95	$2.95

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Focke-Wulf 190	$1.25
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32 page plans cat. book list, sample magazine 10c

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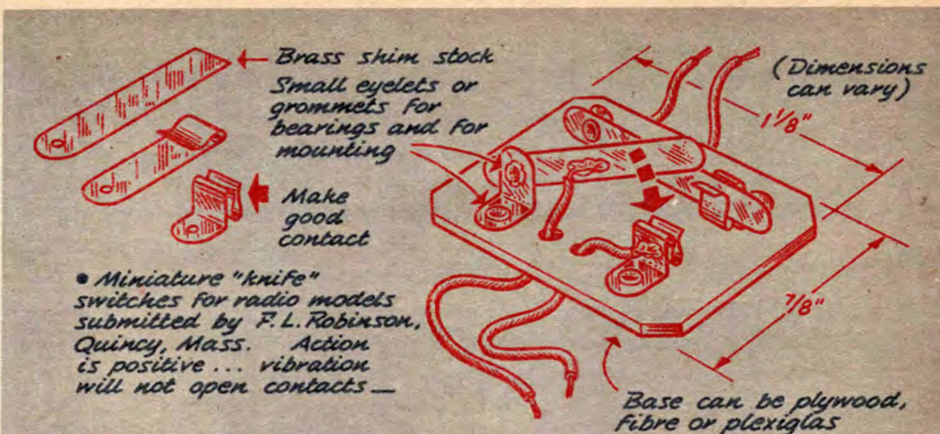
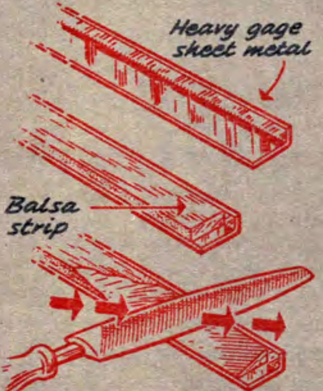
SKETCH BOOK

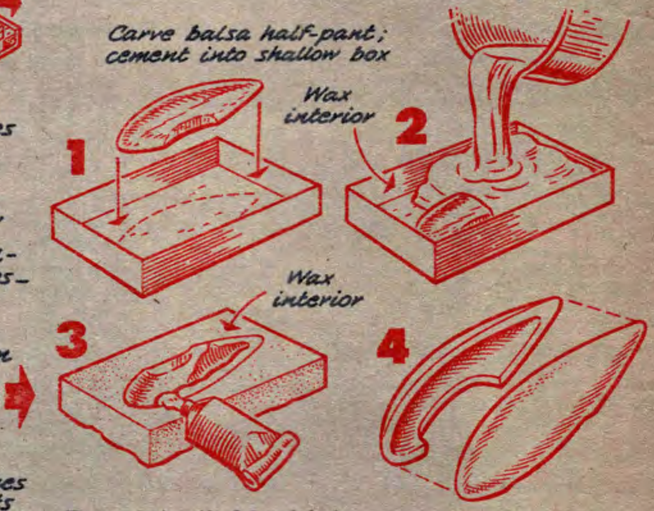

Brass shim stock
Small eyelets or grommets for bearings and for mounting
Make good contact
(Dimensions can vary)
1⅛"
⅞"
Base can be plywood, fibre or plexiglas

• Miniature "knife" switches for radio models submitted by F. L. Robinson, Quincy, Mass. Action is positive . . . vibration will not open contacts—



Rasp with diagonal strokes until metal edges are met—

• Arthur Rosky, Jersey City, N. J., uses this neat method of beveling trailing edges—

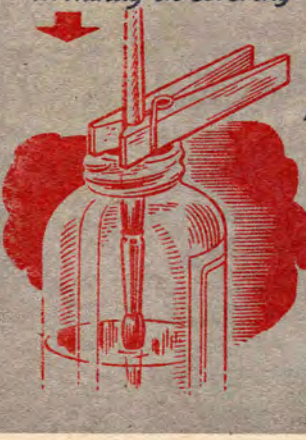


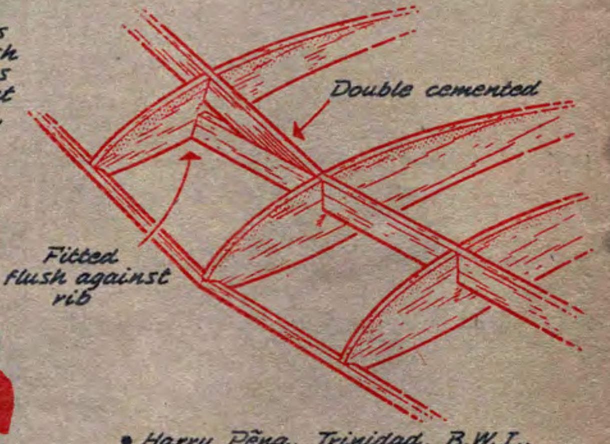
• Mass production of uniform wheel pants is proposed by: Howard Wisch, Baltimore, Md. Plastic wood makes tough, light parts (Remember to make separate right and left molds!)

Press plastic wood into waxed female mold—shape wall thickness as desired—

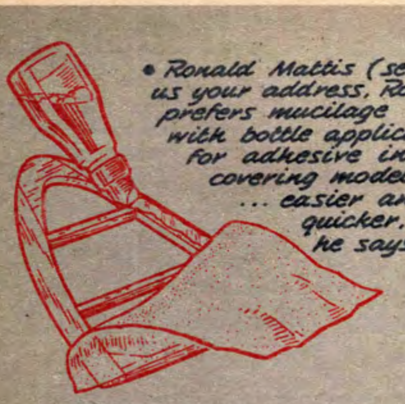
Cement halves together, sand and finish—

• Spring type clothes pin clamped on brush limits depth bristles dip into dope or paint suggests Moishe Poste, Brooklyn, N. Y. . . . Handy in covering



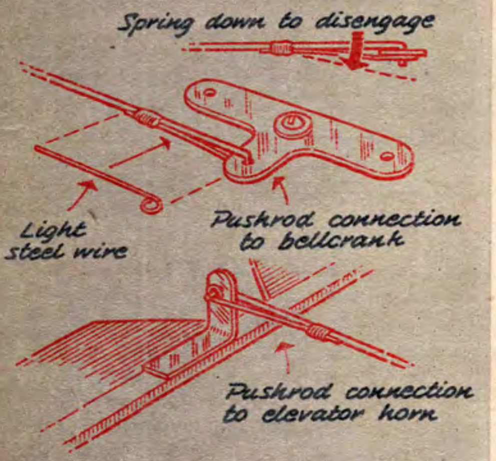


• Harry Pēna, Trinidad, B.W.I., submits this easy spar-joining trick for polyhedralled wings—Ideal for rubber models and light gassies . . . no gussets necessary—

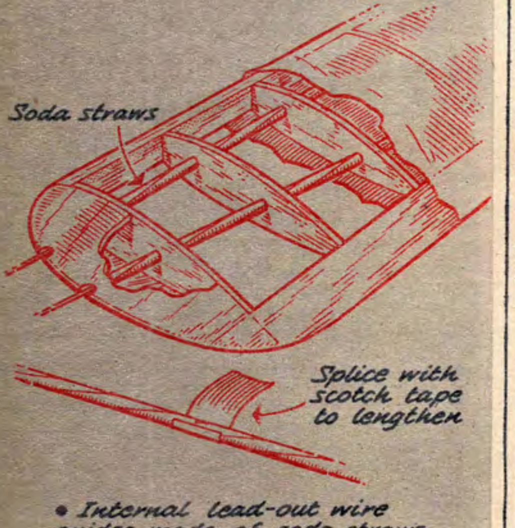


• Ronald Mattis (send us your address, Ron) prefers mucilage with bottle applicator for adhesive in covering models ... easier and quicker, he says—

Have you developed something new in construction, control, or flying that might interest other modelers? Send a rough sketch—we'll redraw it and pay $5 for each one accepted. Sorry, we cannot acknowledge or send back any submissions.


Spring down to disengage
Light steel wire
Pushrod connection to bellcrank
Pushrod connection to elevator horn

• Navy men William Clark, CEL-2, and Lloyd Blanchard, EMP-2, use this fool-proof fastening latch for both terminals of pushrod___ Pushrod can be quickly removed but is locked tightly in use ...



• Internal lead-out wire guides made of soda straws facilitate installation of flexible leads says Carroll Huey, Topeka, Kansas— Added weight is negligible ...

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WARHAWK

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Flying Model—authentically scaled P40F CURTISS WARHAWK. 32½ in. wing span and 156 square in. Crisply die-cut parts; pre-fabricated; Decals; windshield. Completely detailed, full-sized plans. Shaped and notched leading and trailing edge; formed landing gear. CLASS B-C.

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Stunt ship for .030 to .065 engines. Wing area 126 sq. ins.; span 21¼ in. Class. ½A....... $1.95

VAMPIRE
40" span, 9" chord, wing area, 360 sq. in. Ready-built fuselage, Class B-C $4.50

VIKING
51" span, 11" chord, wing area 550 sq. in. Prefabricated fuselage, Class C-D $5.75

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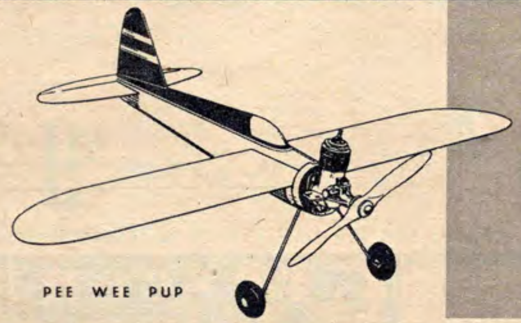
PEE WEE PUP

1. PEE WEE PUP 95c
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2. PEE WEE PURSUIT $1.25
½ A trainer, 20" span.

3. STUNT RUNT $1.25
16" span profile stunter for ½ A.

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Profile fuselage, fine performance.

5. SUPER STUNT RUNT . . . $2.25
Beautiful stunt bipe for .099 engines.

JOY PRODUCTS COMPANY, Menominee, Michigan

Western

(*Continued from page 60*)

one-fifth a second will get the points he really deserves. It has seemed decidedly unfair to give a person 100 points for 145.6 mph and a fellow who did 145.4 only 70 points, to quote one system which has been used in the past.

The first system that received serious consideration was the thought of using a direct proportion to the winning ship. Fortunately the fallacy of the system was realized in time to stop it from being published. The reason this was no good is that it gave a fellow the chance to use a goat in Speed events to reap a harvest in points. For example, if this ship would do 50 mph (and what profile job won't?) and the top speed was 150, the goat would have gotten 33 points, which is just too much of an advantage. Everyone would end up with lots of points, too many.

The flying scale rules have gone through the committee and been approved so you can count on "these" being it. The detailed point system is being developed and will be submitted as soon as possible. The contest will be open to all flying scale models powered with a Half-A engine. Fidelity to scale and workmanship will constitute approximately 70% of the points with the remaining 30% consisting of flight points. There will be a five-minute limit on flight time with a one-minute maximum on engine run, and the flight will be based on the ratio of engine run to total time, using the best of three official flights.

Six attempts will be allowed to make these flights where 10 seconds is an official flight, and the ship must make at least one to qualify. For you guys who have a ship which will R.O.G. unassisted, bonus points will be awarded. As for plans, three views will be required and it is suggested that photos are advisable where plans do not show details as to color and markings. If there are any unusual details or construction, submit a brief written description of these. Need we remind you readers that all plans printed in AT are considered as official since they are closely checked for accuracy.

One suggestion we might offer is to use scale tails, dihedral and landing gears if in any way possible since huge chunks of points will probably be deducted if they are not to scale.

Every effort is being made to have an exhibit every night of the contest where you guys with those beautiful models and those unusual designs will have an evening set aside to answer those thousand and one questions you will be asked. This is a kind of "Nationals demonstration," something new which Al Lewis has suggested. We are also obtaining movies on model testing and model activities which you will have a chance to see. What would be more appropriate than to start the contestants' meetings with a show of interest to everyone? Convair has some sound movies of their free flight seaplane tests which are really swell. Pan Am has an excellent movie on payload models, the BrainBusters have one on hydroflying. The English have a good one on the Wakefield finals. You'll like this contest!

Flying will be from 8 A.M. to 5 P.M., nine hours of flying. Next month we will try to give you the benefit of four years of contest flying experience here on the West Coast so you will know what to expect as to weather and the best time to fly. One thing for sure, you won't have to wait for timers or processors. There will be hundreds of Navy personnel there to see that you get all you want.

The Wakefield eliminations have taken on an added air with the presence of Ted Bieber from Cleveland and Tom Heneby from Jersey City. Both have long jobs but of a little different design. Ted has a O-so-long while Tom is flying a Pogo Stick. Ted has been building up testing time and has now hit the four-minute-plus mark in damp evening air. He is using a 22 inch prop on 18 strands of five mm. Pirelli. Sure floats nice.

PAA activity is terrific for so early in the season. Walt Mooney has a 260 square inch low wing job with a Wasp that is continually amazing the regular free flight fellows. R.O.G. is super while climb and glide leave little to the imagination. Several other A/2 jobs are seen every Sunday with two A jobs flying. Looks like Gardner's watches did it.

In the San Joaquin valley the activity is up over the past three years with a contest taking place every Sunday. Rubber, towline glider and hand launch gliders are included for the first time as the boys gird themselves for the big battle.

At the last Fresno meet Tom Dilley showed his heels to the rest of the gang with his .09 Mini-Hogan. Ocie Randall has added a lot of incentive to the Fresno gang by donating a trophy to be handed around until some expert who has already had his name on it twice comes up for the third time, whereupon it belongs to him. This seems a real swell way to put up a so-called perpetual trophy. Ocie, if this is your idea, good going.

Bobo Crowe proved to be top man the first month and the way that man has been winning, it looks like a short life for the mug. Those guys even had a towline event which Lee Hokins won with three minutes more time than Jim Scheidt, who barely beat out Skippy Fattig.

The Taft contest proved a little cold and sometimes windy; this didn't stop Jack Oxley, though; he had high time with his A/2 job. Leo Archueta was close on his heels with his A/2 original. It was a day for A/2's since they posted both high times. We were mighty pleased to see Ocie Randall's name up as winner of Class A. For one who puts so much in the game, it's a shame he can't have more time to fly.

June Dyer writes that the field was a little damp at the first Northern California Free Flight Council Contest, their 8th in all. Seems like her Hudson had real step-down features. The frame was on the ground in the mud. Mario Bertolucci was C/D with Hal. Simons as chief timer, ably assisted by Lee Ross and Tom Moore. There were 131 contestants from six clubs entered. Robert Fizer won class A with high time of the day, so he also won the Granat Brothers high time trophy. Jack Retner was top man in B, Richard Foss in A/2, Wayne Conner in C while John Lenderman won the Rubber event.

Hank Cole, that peerless designer, was the recipient of the David Lloyd Memorial Trophy as the Oakland Cloud Duster making the outstanding contribution either in models or for the good of the Club. This was for his design prototype of the O-so-long. The Cloudusters have another of their well known names back after a fifteen-month tour of duty with MATS. He has a new station wagon to haul the gang to contests, so we can again expect to see that ole familiar sight of fifty guys and 500 models piling out of Carl Rambos' wagon at contests.

Since so many inquiries have been received about the WAM's Control Line Endurance we are presenting their rules in entirety. They are: 1. Any make of plane and any make and size of motor may be used. 2. Refueling in flight shall not be permitted. 3. The word Pilot shall be the term used for the contestant flying the model plane. 4. For individual record performance the plane must be taken off, the flight controlled in its entirety and the plane landed by one pilot only. 5. For club record performance more than one pilot may be used to control the plane in flight. 6. The control lines shall not be attached to a pylon or any other mechanical device for aid in controlling the flight other than the control handle held by or affixed to the pilot. 7. Any plane that exceeds five pounds in weight shall be flown with lines not less than .020 inch diameter. 8. Length of control lines shall be not less than 25 feet or more than 70 feet long. 9. Time shall start the instant the plane becomes airborne and shall end the moment that the plane again touches the ground. 10. Officials shall be a lap counter and a timer. The following data must be recorded: (a) Total time, (b) Total laps, (c) Make, model and displacement of motor used, (d) Volume of fuel tank, (e) Combined weight of plane and fuel, (f) Length and diameter of lines used, (g) Types of fuel.

Ted Enticknap writes and wonders how his

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ROW Jr., Veco 29
9½-6 Power Prop

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Navy Radio Control
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Don Murray
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Free Flight Gas
Cl. C Sr., Triumph 49
11-6 Top Flite

Ernie Shailor
Detroit, Mich.
Free Flight Gas
Cl. B, Open, Forster 29
10-3½ Top Flite

Curtis Franke
San Antonio, Texas
Free Flight Gas
Cl. C, Jr., Torp 32
11-6 Top Flite

Tommy Davis
Atlanta, Ga.
Control Line
Spd. Cl.A, Jr. McCoy 19
7-9 Power Prop.

Don Tune
Los Angeles, Cal.
Cl. AA Junior, Free Fl.
Torp. .049
6-4 Power Prop

Lou J. Andrews
Norwood, Mass.
Open Stunt
Fox 35
10-6 Top Flite

Don Ferguson Jr.
Newtonville Mass.
Senior Stunt
Fox 35
10-6 Top Flite

Jack McComb
Columbia, Mo.
Sr. Free Flight
Gas Cl.AA, Wasp .049
6-4 Top Flite

Dick Everett
San Diego, Calif.
Open Free Flight
Gas Cl.AA, Torp .049
6-3 Top Flite

Bob Lutker
Ft. Worth, Texas
Open-Team Racing
K&B 29
9-9 Power Prop

Edward R. Mate
Chicago, Illinois
Free Flight Gas
ROW Sr. OK Cub 09
7-4 Top Flite

Chief J. K. Abbott
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Control Line-Flying
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10-6 Top Flite

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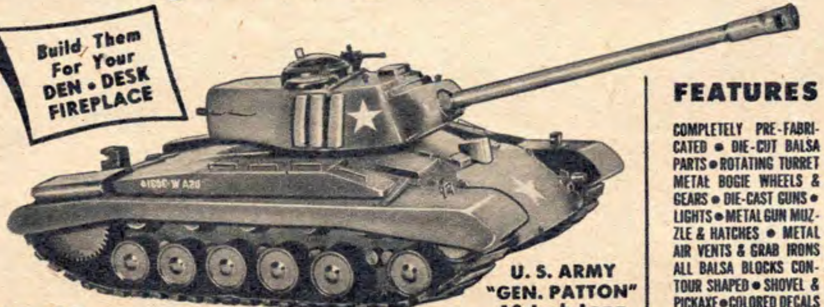

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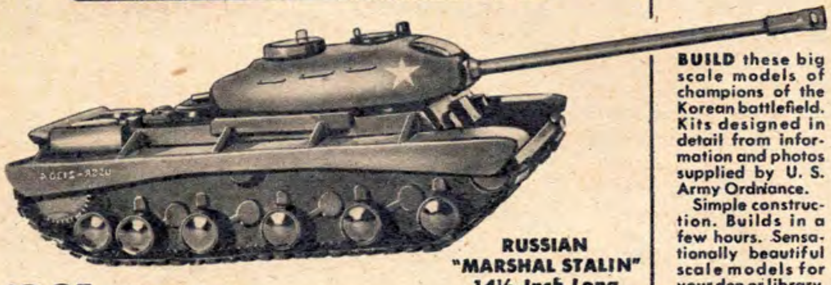

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name got tied up with Half-A flying scale. Perhaps it is that Taube which appeared in AT, Ted. As a way of qualifying his position he states that he would like to see all sizes of engines used, at least up to .20 displacement. He thinks the original limit of 2 minutes' flight time was very good since he has had experience in thermal flights and believes that any decent scale model is a gone goose on a 30 second run.

The ratio system he does not agree with wholeheartedly, but he also sees its merits in that it tends to eliminate the problems of fuel shut-off. He wants to see this event grow beyond the ridiculous state of rubber scale and its one contest a year, so he firmly believes that the scale point system must be set up on a very simplified basis. According to Ted he has received a lot of correspondence in regard to these scale models and he reports that most clubs have settled down to a 70-30 ratio in judging, even though his own club used 60-40.

—DICK EVERETT

Control Surfaces

(*Continued from page* 38)

and Howard Bonner, and the latter manufactures it.

Though not widely used now, another interesting control mechanism was perfected by Owbridge, called the Rudevator. This consists of an escapement-like unit to which is connected a rotating vane—somewhat akin to one blade of a propeller—this blade being located back of the fixed rudder. The blade may be stopped in a number of positions, so as to give the effect of right or left rudder and up or down elevator, or combinations of rudder and elevator. In actual practice, though, it has been found that with the vane set to give the desired degree of turn, there just isn't enough elevator to be worth while. In other words, it takes proportionately much more elevator action to move a plane from a straight course than it does rudder.

Before leaving the subject of escapements, mention should be made of one that is designed expressly for the purpose of motor control. Another Bonner development, it has a normal escapement mechanism, but the moving arm operates valves to produce two-speed motor control or motor cut-off, as desired. When the armature is held in the operated position, the high speed needle valve is cut out, stopping the engine. To change from high to low speed, a short pulse causes the valve connected to the low speed needle to shift; another pulse resets it. Fast pulses do not have much effect upon the high speed needle valve. At low speed position, of course, both needle valves are feeding fuel, causing the engine to run with a rich mixture.

As noted previously, one of the principal objections to the two-arm escapement is the fact that in a continuous turn, a steady current is drawn from the battery. Means to reduce this greatly have been incorporated in some commercial units. Both the E.C.C. and E.D. types have what is termed a current-saving feature, which means simply that normal current is drawn for an instant, as you press the transmitter button. As soon as the escapement moves to the selected position, a pair of electrical contacts cuts in another winding, which then holds the mechanism firmly with only a fraction of the current that would be required without this feature.

All escapement-operated devices (except the Bonner unit we have described) have to move through a set sequence. You *must* go from—for example—

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Page 58—Cessna Aircraft Co.
Page 60—Top & bottom: U.S. Navy.

neutral to right to neutral to left, etc. If you want to make several left turns, you have to pulse through unwanted right position each time. This isn't really as hard as it sounds, and experienced flyers do it automatically. Even so, however, they occasionally are apt to give the wrong number of pulses, particularly in close or fast maneuvering.

A mechanical gadget, the Beep Box, can be built that will count the number of pulses for you—all you have to do is move a lever to right, left or neutral as required—and the Box will supply the necessary pulses to turn the rudder. Described thoroughly on Air Trails' full size plan #R101 (35c), this device may be applied to any type of escapement, and is ideal for the beginner, since it allows him to concentrate on flying, not on counting pulses. Oddly enough, the Beep Box is used principally by expert flyers, who find it enables them to fly with high precision.

Many modelers have probably heard the mysterious term "proportional control" without knowing what it means, or what advantages this sort of control affords. Very briefly, true proportional control can simulate closely the action of the "stick" in an airplane. The control stick in model plane work, of course, is on the ground at the transmitter. The ideal system is so arranged that as you move the stick a small distance to the right, the plane rudder moves likewise, then stops at that position until the stick is brought back to center, whereupon the rudder accurately neutralizes. Any movement between center and full left or right of the control stick is immediately duplicated by the airplane rudder, and there is no sequence action as required in escapement flying.

What this sort of control can mean in model flying may easily be imagined. It makes possible the operation of a model plane with almost the speed and precision of full-size airplane practice. We will investigate this further in a subsequent R/C Primer article.

Guided Missiles

(*Continued from page* 21)

or wooden girders. You top this with a roof, and move in the machinery.

Along come bombers. They drop incendiaries, and they burn the roof and the wooden girders. You clean out the charred mess, repaint some of the machines and start work again. More bombers come and they drop high explosives. The roof lifts off, maybe a wall comes down and you clean out the mess again. You patch the wall, replace the roof, move the machines back on their bases again and start production.

Finally somebody comes over with an A-bomb and drops that one. If you are not on ground zero, the chances are the wall facing the blast gets moved back a bit. All the windows break. But most of the building stays up and you can make temporary repairs. Again you relocate the machinery and clean around a bit, and you're producing again.

This is endless. The bombs knock them down and you build them up again.

But there is one way to destroy a building completely. Have you ever seen the pictures of an area after it's been hit by an earthquake? The buildings are strewn all over in little pieces about the size of your fist. Once in a while a wall is left standing, but mostly there is just rubble.

We can do the same thing with a special missile.

Suppose we have a rocket type of missile, similar to the V-2. It takes off and climbs to a very high altitude, and then dives back to earth. It explodes there and does its damage. Our special rocket will have extra features. First, it will carry additional fuel for its rocket motor, to be used during the trip down to earth. And second, its nose will be a very hard material—perhaps tungsten carbide or even diamond—and under that will be a steel core. Inside that, a baby A-bomb.

Once on its downward leg, the rocket motor kicks in again. The missile builds up speed until it is traveling about seven or ten times the speed of sound. It slams into the earth and begins to drill its way underground like a crazed gopher. The ground, which usually offers high resistance, cuts like butter in the face of the tremendous energy being dissipated at fantastic rates. But eventually, because the drag of the missile is pretty high through solid soil, the missile decelerates and grinds to a stop. Its shell is almost incandescent now, but it lasts only for a split second. With a shattering crash, the A-bomb explodes.

Up above the ground heaves upward, writhes and shakes in a frightening, grinding sea of earth.

And the buildings? At the first motions of the earth, the masonry cracked, the roof fell in, the side walls crumbled. And with the subsequent motion of the earth, the foundation was torn, twisted and shifted. It will never be usable again at that site. When the dust and smoke have settled, the factory site looks like a plowed field.

These are just two examples of the kind of jobs we can best do with missiles. Right now, guided missiles are interim weapons; it will take lots of engineering and development to get them to resemble anything like the two we have described.

For the future, then, our job is like that of Dr. Frankenstein. We must create a monster. We must give him a magnificent body and prodigious strength. And then we must make him an idiot. Then we'll be successful.

Power Tools

(*Continued from page* 41)

and the hand grinder style in considerably higher powers. These are somewhat larger, of course, though in the case of the shaft machines the actual handpiece size may be about the same, regardless of the size and power of the motor. Heavy duty types may have as much as 1/10 hp, and can be had with regular key-style chucks, if you wish.

The reciprocating tools come in many sizes and shapes, but the sander and jig saw are probably of greatest use to the model builder. The sander shown in use is a light job weighing only 2½ lbs., so it may be used for smoothing off the framework of fuselages and wings before covering, or for cleaning off the "fur" on low grade balsa.

The sandpaper in this particular unit moves in a fore and aft direction at 14,400 strokes per minute, and the tool is just guided over the surface—no pressure required. The sanding paper is easy to change, but for all these power sanders you must have the correct grade. Ordinary sandpaper or emery paper will quickly clog, and does not wear well in such service. A type known as Garnet paper is required; this is long lasting and will not load up with dust.

A heavier type of sander, which uses a rotary motion of the pad, is also illustrated. This particular machine runs at 3450 rpm, and has a 1/15 hp induction motor. The sanding pad moves in a 3/16" orbit, and the resulting action makes this pretty much a production item. It is very useful for heavy model jobs, though, and a few of them are shown here; it may also be used to smooth down common box wood for use in building tool cases or model carrying cases.

The sander weighs 5 lbs. It has uses outside the model field which may prove to be of the utmost importance to modelers. If you have a touchy do-

(*Continued on page* 78)

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	Cl.	Age	Time	Held by	Date Est.
H. L. Stick	B	Jr.	18:55.5	Martin Friedland Philadelphia, Pa.	6/ 9/40
	B	Sr.	25:37.6	Don Kennedy Burbank, Calif.	4/ 8/48
	B	Op.	26:53.6	Wilbur F. Tyler Piermont, N. Y.	9/12/48
	C	Jr.	19:17.3	R. Jagiello* Chicago, Ill.	7/ 3/40
	C	Sr.	24:52.6	Anthony D'Alessandro Philadelphia, Pa.	8/14/49
	C	Op.	32:19.8	Pete Andrews Forest Hills, N. Y.	8/14/49
	D	Jr.	15:06.4	Paul Simon Detroit, Mich.	7/26/49
	D	Sr.	22:54.6	Thomas Greet Philadelphia, Pa.	6/29/47
	D	Op.	30:37.2	Wilbur F. Tyler Piermont, N. Y.	9/25/49
ROG Cabin	B	Jr.	12:42.3	H. Kaczynski Detroit, Mich.	7/ 5/40
	B	Sr.	15:09.3	David Call Philadelphia, Pa.	4/20/41
	B	Op.	18:44.6	Don Kennedy Burbank, Calif.	7/ 9/49
	C	Jr.	11:32.3	R. Jagiello* Chicago, Ill.	7/ 5/40
	C	Sr.	16:52.5	Erwin Rodemsky Detroit, Mich.	8/17/50
	C	Op.	24:35.2	David Lane Call Philadelphia, Pa.	9/25/49
ROW Cabin	B	Jr.	0:37.6	Hermann Andresen Chicago, Ill.	11/ 5/49
	B	Sr.	13:13.0	David Call Philadelphia, Pa.	6/13/42
	B	Op.	11:17.0	David Call Philadelphia, Pa.	9/28/47
Autogiro		Jr.	3:53.7	Edward A. Vargo Chicago, Ill.	4/11/42
		Sr.	2:51.2	Ralph Brown* Arlington, Mass.	4/20/40
		Op.	2:45.5	Joseph P. Matulis Chicago, Ill.	11/16/41
Ornithopter		Jr.	1:18.0	Edward A. Vargo Chicago, Ill.	12/27/41
		Sr.	3:22.0	John Bock Chicago, Ill.	1/ 3/42
		Op.	4:05.4	Carl Goldberg Chicago, Ill.	8/16/41

* Deceased

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Helicopter		Jr.	3:54.6	Richard Quermann Clarksburg, W. Va.	1/12/41
		Sr.	5:34.4	James Broderick Chicago, Ill.	12/27/41
		Op.	5:25.0	Carl Goldberg Chicago, Ill.	11/16/41
H. L. Glider	A	Jr.	0:49.2	Bruce Strehlow Lynwood, Calif.	3/13/49
	A	Sr.	1:01.0	Einar Eneboldson San Francisco, Calif.	3/20/49
	A	Op.	1:06.0	Jack S. Strehlow Cypress, Calif.	3/13/49
	B	Jr.	0:55.8	Richard Sliwka Bayonne, N. J.	9/12/48
	B	Sr.	1:03.8	Angelo Lo Castro San Francisco, Calif.	3/20/49
	B	Op.	1:13.6	Robert W. Dagand Hollywood, Calif.	3/13/49
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Unlimited		Jr.	11:19.2	James C. Watson Ft. Des Moines, Iowa	8/24/51
		Sr.	18:00.0	Otto Heithecker Detroit, Mich.	6/30/51
		Op.	18:00.0	Manuel D. Andrade Oakland, Calif.	4/22/51
		Op.	18:00.0	James Onofri Morrisville, Pa.	9/ 9/51
ROW Unlim.		Jr.	NO RECORD ESTABLISHED		
		Sr.	NO RECORD ESTABLISHED		
		Op.	7:08.0	Edward O. Slobod Hollywood, Calif.	8/ 5/51
Wakefield		Jr.	7:17.6	Don Tune Los Angeles, Calif.	7/27/51
		Sr.	6:40.4	Otto Heithecker Detroit, Mich.	7/27/51
		Op.	15:00.0	Joe Bilgri San Jose, Calif.	4/22/51
Autogiro		Jr.	NO RECORD ESTABLISHED		
		Sr.	0:20.2	Wm. F. Foshag Washington, D. C.	7/25/48
		Op.	0:50.4	Parnell Schoenky Kirkwood, Mo.	5/13/51
Ornithopter		Jr.	NO RECORD ESTABLISHED		
		Sr.	1:25.4	Wm. R. Bigge Washington, D. C.	7/25/48
		Op.	0:48.4	Parnell Schoenky Kirkwood, Mo.	7/18/48
Helicopter		Jr.	2:11.4	Thane Bopp Kirkwood, Mo.	8/19/51
		Sr.	5:22.6	Harvey S. Robbers, Jr. Oakland, Calif.	6/ 6/48
		Op.	8:55.0	Frank Ehling Jersey City, N. J.	7/ 3/48

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"AT" Data Dept: NAT'L MODEL RECORDS (Cont.)

	Cl.	Age	Time	Held By	Date Est.
H. L. Glider	A	Jr.	7:47.2	Johnnie S. Werts Oildale, Calif.	11/10/51
	A	Sr.	16:44.6	Bob Brawner Phoenix, Ariz.	7/25/51
	A	Op.	15:26.2	Ray Matthews Oklahoma City, Okla.	7/25/51
	B	Jr.	NO RECORD ESTABLISHED		
	B	Sr.	NO RECORD ESTABLISHED		
	B	Op.	15:16.8	Dick Everett San Diego, Calif.	7/25/51
T. L. Glider	C	Jr.	2:57.0	Bill Bay, Jr. Daytona Beach, Fla.	12/29/51
	C	Sr.	1:08.6	Harry Robertson Phoenix, Ariz.	7/24/51
	C	Op.	10:00.0	J. W. Chandler St. Paul, Minn.	7/24/51
	D	Jr.	12:03.2	James Watson Ft. Des Moines, Iowa	7/24/51
	D	Sr.	30:00.0	Murray Feigenbaum Brooklyn, N. Y.	6/17/51
	D	Op.	21:09.0	John Dooley Crossville, Tenn.	6/23/51

GAS MODELS—FREE FLIGHT

	Cl.	Age	Time	Held By	Date Est.
ROG-Type	½A	Jr.	21:31.4	Clifton Highman Bakersfield, Calif.	6/10/51
	½A	Sr.	25:05.0	Eugene Bartel Dallas, Oregon	9/10/50
	½A	Op.	28:27.0	Edward S. Gilkey Central Point, Ore.	6/24/51
	A	Jr.	28:36.2	Johnnie S. Werts Oildale, Calif.	4/ 8/51
	A	Sr.	30:00.0	Homer Werts Oildale, Calif.	4/ 1/51
	A	Op.	30:00.0	Kenneth R. Fitch Garden City, N. Y.	9/16/51
	B	Jr.	23:50.0	Bernard Boehm South Bend, Ind.	6/25/50
	B	Sr.	28:02.0	Homer Wertz Oildale, Calif.	9/ 2/51
	B	Op.	30:00.0	Don C. Sutton Phoenix, Ariz.	3/ 4/51
	C	Jr.	22:49.0	Jack Hudspeth Olympia, Wash.	8/16/50
	C	Sr.	29:45.2	Carl R. Wheeley Washington, D. C.	8/16/50
	C	Op.	30:00.0	Lyle O. Corby San Diego, Calif.	4/16/50
	C	Op.	30:00.0	Robert L. Ottoman Medford, Oregon	6/10/51
	C	Op.	30:00.0	Kenneth E. Ernst Indianapolis, Ind.	8/19/51

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	Cl.	Age	Time	Held By	Date Est.
ROW	½A	Jr.	3:52.0	Jan Lowe San Diego, Calif.	7/26/51
	½A	Sr.	15:45.0	Paul deMounterice, Jr. Fishkill, N. Y.	8/19/51
	½A	Op.	12:05.0	Robert J. Dunham Tulsa, Okla.	7/26/51
	A	Jr.	7:43.6	Don Tune Los Angeles, Calif.	8/ 5/51
	A	Sr.	11:27.0	Edward R. Mate Chicago, Ill.	7/26/51
	A	Op.	18:44.4	Daniel C. Lutz Los Angeles, Calif.	7/26/51
	B	Jr.	4:11.8	Bill Lofland Abilene, Texas	7/26/51
	B	Sr.	6:44.4	Charles Gary Kirst Springfield, Mo.	7/26/51
	B	Op.	7:31.0	James A. Summersett, Jr. El Paso, Texas	7/26/51
	C	Jr.	NO RECORD ESTABLISHED		
	C	Sr.	8:25.4	Eugene Wallock San Gabriel, Calif.	8/ 5/51
	C	Op.	18:15.6	Don W. Steele Lubbock, Texas	10/22/50

GAS MODELS—CONTROL LINE SPEED

Cl.	Age	Time	Held By	Date Est.
A	Jr.	116.38	Sonny Wheeler Roanoke, Virginia	9/16/51
A	Sr.	121.24	Charles LeBoeuf Dayton, Ohio	8/25/51
A	Op.	131.33	G. Mueiler & J. Nightingale Tucson, Ariz.	10/28/51
B	Jr.	127.25	Alfred M. Davis Birmingham, Ala.	7/52/51
B	Sr.	135.08	Richard Rigney Long Beach, Calif.	1/22/50
B	Op.	136.93	Anthony Grish St. John, Indiana	7/25/51
C	Jr.	128.61	Richard A. Modler Dayton, Ohio	8/18/50
C	Sr.	137.46	Jack Friedland Oakland, Calif.	7/27/51
C	Op.	136.83	Lee A. Hill Corpus Christi, Tex.	7/27/51
D	Jr.	154.44	William C. Weissbrodt Milwaukee, Wisc.	9/22/51
D	Sr.	149.94	Mark Brown Stockton, Calif.	9/24/50
D	Op.	162.53	Harold F. deBolt Williamsville, N. Y.	9/17/50

JET MODELS—CONTROL LINE SPEED

Age	Time	Held By	Date Est.
Jr.	138.62	Kenneth Mattingly Hialeah, Fla.	8/23/51
Sr.	157.69	Herbert L. Davis Birmingham, Ala.	6/10/51
Op.	154.95	Thomas P. Baker Kings Mtn., N. C.	7/ 8/51

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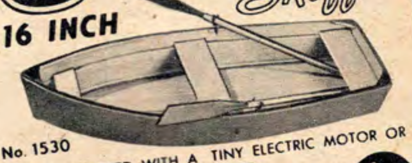

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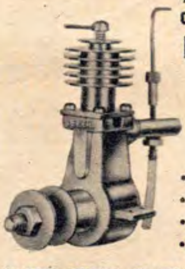

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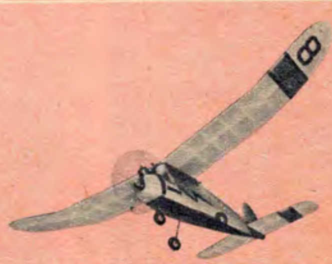
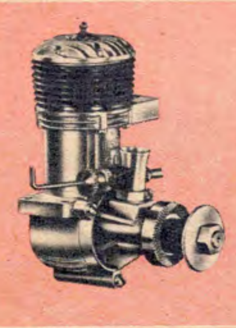
Berkeley's Brigadier "R.C.-38" is a completely redesigned Half-A and A free flight model that may be flown as an R/C job, a PAA-Load model or as a free flight sport craft. Plans include radio control and PAA-Load details. Takes motors from .035 to .099 displacement. Sells for $1.95; 38 inch span.



R/C-PAA-LOAD-SPORT F/F



Forster Brothers have two powerful new front rotary valve engines, one of .29 and other .31 cu. in. displacement. Recommended for stunt work with 9/6 props. Both have same outside dimensions and weigh 6 oz. Price on each is $14.25. Heat treated steel cylinder, aluminum piston with two rings.

A snap-on spinner is the latest item announced by Sullivan Products, makers of Pylon Brand wire and accessories for the model field. Of Dupont Nylon, the new spinners are one piece with a back plate. Guaranteed not to slip off; they require no nuts or bolts. Five sizes: 1, 1.25, 1.5, 1.75 and 2".

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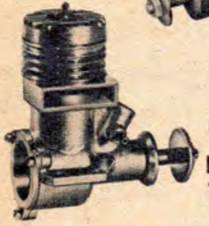

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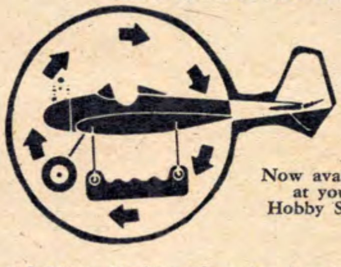

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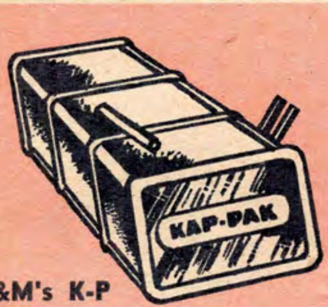

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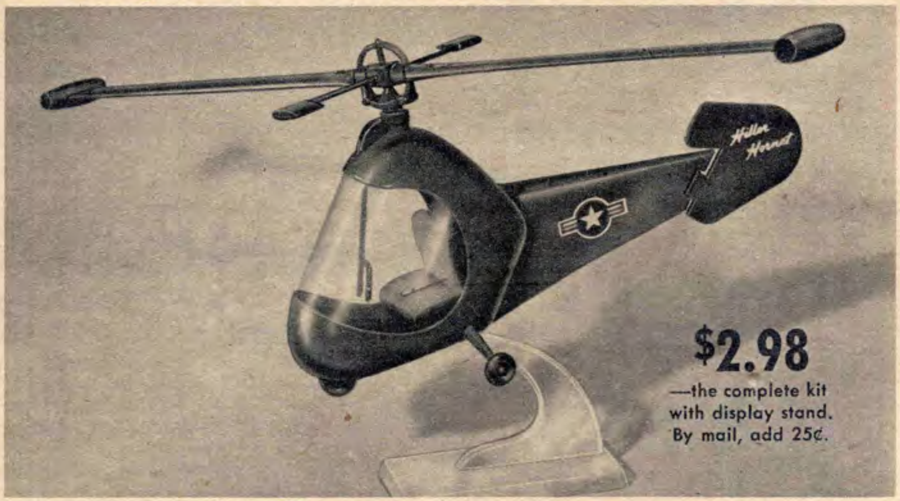
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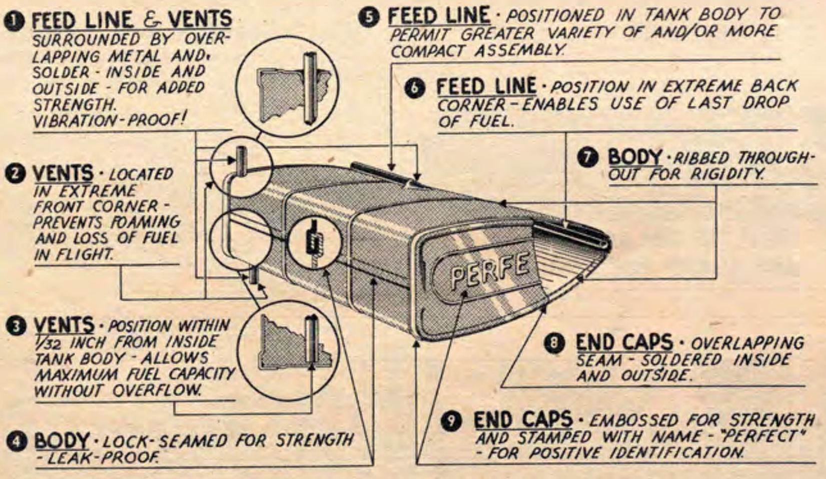
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❻ FEED LINE · POSITION IN EXTREME BACK CORNER - ENABLES USE OF LAST DROP OF FUEL.
❼ BODY · RIBBED THROUGHOUT FOR RIGIDITY.
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❾ END CAPS · EMBOSSED FOR STRENGTH AND STAMPED WITH NAME - "PERFECT" - FOR POSITIVE IDENTIFICATION.
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(Continued from page 71)

mestic problem due to time and money spent on your hobby, use of this tool on some of those long-deferred household chores will ease the tension considerably!

The vibrating type of jigsaw is especially fitted to model uses, since the rapid movement of the blade leaves a surface that is beautifully smooth, even on soft balsa. These saws have a magnetic type of "motor" which produces 7200 cutting strokes per minute. The mechanism is very simple and requires no oiling or other maintenance. The blade action is said to be entirely safe in that to be cut, the work must be firmly held down against the table. If it is not, no cutting can take place. Thus, a stray finger would not be cut.

The large size saw that we show is rated to cut 1" thick wood (it will handle much thicker balsa, of course), ¼" plywood, or thin metal and plastic. The makers say it sands as it cuts, and this is no exaggeration, for the edges require no further finishing.

There is still another type of reciprocating tool that has modeling uses. For our particular needs it may be fitted with wood gouges, as we show in the illustration, with blades similar to those used in regular hobby knives, and other fittings. This one also has a magnetic vibrator style of motor, the stroke of which may be adjusted to suit the work at hand. The accessories are held in collet-style of chuck. This tool should be very handy to use in making the hollowed-out balsa type of fuselage.

Most owners of these power tools find new jobs for them almost every time they use them. While we have stressed that power tools will speed your work, some jobs can be done with them that you just can't do with hand tools. The main advantage in letting electricity help you, though, is that by utilizing such help, you can spend less time on the tedious parts of model building, and more doing the jobs you like, whether it be simply turning out more and better models than ever before, or in getting out in the field more quickly to fly them.

Dope Can

(Continued from page 59)

arrangements are being worked out with ample transportation and communication between field and radio cars. Happy day! Since the flying site is near the ocean (wot's this?) the afternoon winds usually become pretty stiff. Any flying after 3 P.M. results in quick out-of-sight performances. For that reason the officials urge everyone to make all flights possible in the morning. Can't say they didn't give us ample warning. Tentative starting time for the meet each day has been set for 8 A.M. with a closing time of 5 P.M. All sounds very fair to us.

For additional information and entry blanks write J. M. Bollinger, Contest Director, 1952 National Championship Model Airplane Contest, 6116 Olive Avenue, Long Beach 5, Calif. Enclose 6¢ in stamps. For info on car pools being organized across the country write the A.M.A., 1025 Conn. Ave., N.W., Washington 6, D. C.

NACA Jobs for Modelers. That item "They Model For Money" in the last AT can be expected to bring a rash of requests for info on Civil Service model building jobs. Well, to be helpful, we'll pass on the scoop to all. Young men interested in the National Advisory Committee for Aeronautics' (NACA) apprentice course who qualify as apprentices start at a salary of $2,400 to $3,000. After successful completion of training, they step up to the $3,800 to $4,000 range and nothing stands in the way of higher advancement.

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the three NACA facilities: Langley Aeronautical Laboratory, Langley Field, Va.; Lewis Flight Propulsion Laboratory, Cleveland, Ohio; Ames Aeronautical Laboratory, Moffett Field, Mountainview, Calif.

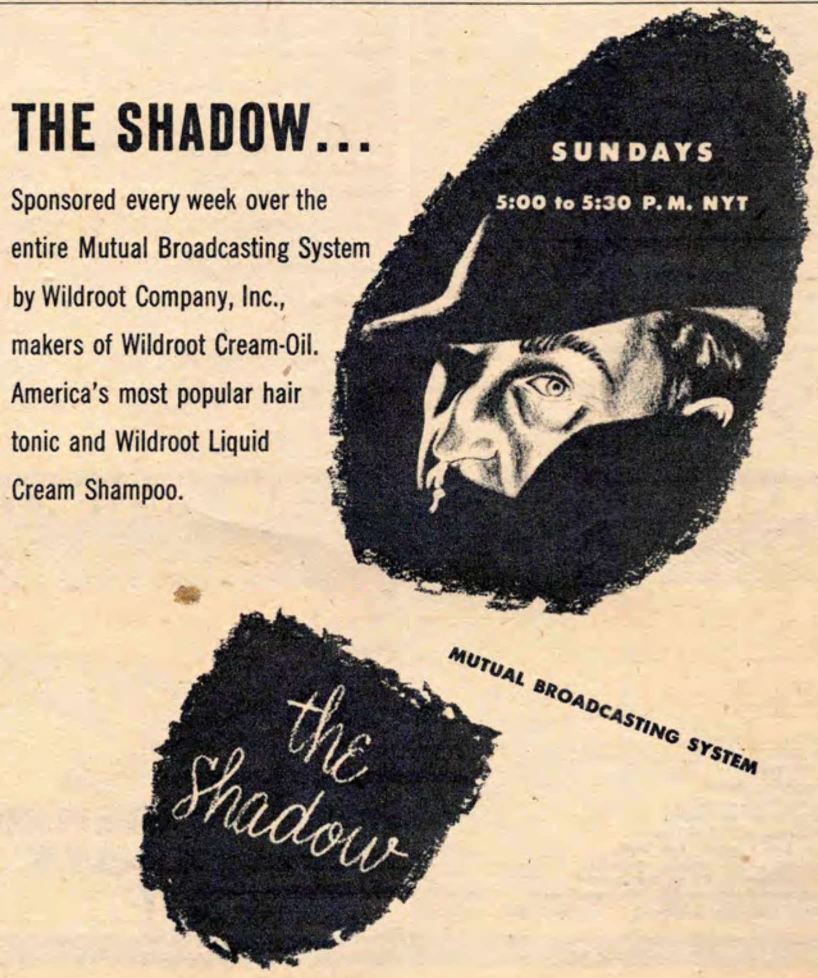
AT's Club Listing. If you're a member of an active model aero club and your group hasn't recently received a copy of Air Trails' Club Registration form, let the mag know immediately of your existence. The famous Air Trails Directory of American Model Aero Clubs is about to make its appearance once again on a yearly basis and you certainly want your organization included. The listing is used widely by contest sponsors to notify all interested of meets and other special aeromodeling gatherings—so it's to your advantage to be listed!

Salem, Ore., Sky Cats. Contact address for this club is 163 North Liberty. Sounds like a lively organization. Full name is Capitol Sky Cats. Group has just acquired a meeting place at the local Dodge garage where each Tuesday evening sees modeling holding sway. Don Santee edits the club's interesting news bulletin. Earl Cayton is a member. The group has completed a car top carrier for models as a cooperative project. Radio control models are popular.

Half-A Flying Scale—Eastern Style. For their 6th annual Free Flight championships, the Screamin' Demons of Long Island, one of the most active and best known clubs in the metropolitan New York City area, has come up with its own brand of flying scale free flight regulations. Because of the wide interest in proposed rules for such an event, let's run through the SD's set:

Event is open to all types of Half-A powered free flight scale models. Any, and all, rules which pertain to free flight gas models, as outlined by the AMA, will be strictly enforced unless specifically stated otherwise.

The purpose of this event is to obtain the best free flight performance and still retain full-scale proportions and construc-



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tion. A point system will be used that will give equal points for scale judging and for flight judging.

Models may not be flown before they are judged for scale. All models must be in the scale judging area before 12:30 to be eligible. Three judges will score the models on an independent basis and an average of their scores will be accepted as the final score. A maximum of 100 scale points is possible as follows: 25 points for fidelity to scale, 25 points for workmanship, 25 points for finish and 25 points for detail.

No handicaps will be placed on models that do not feature fully enclosed engines or tanks if an honest effort has been made to retain scale appearance. Motor run limits will be strictly upheld. Parts may not be added or detached for judging or flying purposes without resulting in disqualification.

A maximum of 100 points is provided for the best three flight total. A total of six attempts to make three official flights is provided. These flights may be taken at any time *after* the models are judged for scale. The best total will receive 100 points and all other flights will be graded proportionally and converted into points.

Scale models must ROG unless weather conditions or terrain interfere. If this case occurs, ample notice will be made to all entrants at the time of scale judging. A 20-second motor run is allowed for the flying scale event.

An entry will not be accepted unless it completes both the scale judging and the flight performance judging. By posting advance notice with the contest officials an entrant may hand-launch his model and complete three 30 second flights (minimum) using a 15-second motor run. By doing this a maximum of 10 flight points will be awarded and the model will be accepted as qualifying.

You can see that there's quite some variation in the Western ideas on gas powered free flight flying scale and those of the Eastern crowd. Remains to be seen (we can see some of those remains strewn around the contest field, too!) which will win out for the official AMA rules book next year. In the meantime it should be a *very* interesting contest season.

Bob Buragas of the Screamin' Demons says that in the drawing up of the Half-A F/F scale requirements it was fortunate that for every dope brush specialist (beauty enthusiast) there was a free flight fan in the crowd. Which group will eventually take control of the tiny uncontrolled scale craft contest—well, time will tell.

Cranford, N. J., Club. Except for the postmark, we'd never have known that the Cranford Flying Fools is a new club that's been formed in New Jersey. Dick Sarpolus, 4 Spring Garden St., is the newly elected president; Jack Darkin is veep; Arthur Simmons, secretary. Group meets for combat and team racing are scheduled.

Real Square from Way Back. Royce A. Childress, RDSN, USN, attached to the USS Arcadia (AD23) was looking through the last few issues of AT and couldn't put off any longer getting in a little dig at the square tip and flat sided boys (hez referring to the modern school of free flight designers).

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552—Half-A F/F scale Curtiss Racer U/C scale Dart Kitten; Reinhardt's Galloping Comedian .29 to .35 stunt.

ATA 521—Fokker Triplane, 20 inch wingspan, control line for .09 engines; B-36 solid model, 14 inch wingspan; Ole Slippery team racer, 30 inch span, .29 engines; Horton IV flying wing scale towline glider, 35 inch wingspan; Little Senator Half-A free flight, 30 inch span; Bienenstein's Mulvihill Trophy 54" winning outdoor rubber stick.

ATA 522—North American AT-6 control line flying scale with complete cockpit details, 40 inch span for .32 to .60 engines; Bristol Bullet rubber scale biplane, 18 inch span; Dunham's All-American rubber cabin, 59".

ATA 523—Happy Medium record-holding Free Flight, .29 or .31 engines, 68 inch span; Executive twin #50 Jetex powered all balsa semi-scale, 18 inch wingspan; Double Whammy stagger wing U/C stunt for .29 to .35, 36" span.

452—Don Still's Stuka Stunt model: Thomas-Morse control line flying scale; Hall-Massey speed models.

352—Air Force Champion team racer Chow Hound, .29 engine, 26 inch span; Consolidated PB-2a U/C flying scale for large engines, 56 inch span: Ehling's National Half-A PAA-Load winner, 33 inch span: Grzesczak's PAA-Cargo free flight for Half-A engines, 40 inch span.

252—Batiri free flight; Everitt's Wakefield; Bonnie Lass A/2 team racer; Combateer combat U/C; Half-A Copter.

152—Art Chester Racer U/C flying scale; Hot Canary jet speed; K. C. Cutie semi-scale F/F; Do'no' F/F A/2.

1251—Bourgeois' Jezebel team racer; Storey-Willard F/F low wing Korker; deBolt's Half-A Twin semi-scale U/C; Stits Junior, C/L scale.

1151—Douglas Mailplane F/F Half-A; F/F Glutton; Half-A Stunt Chum; ROG-ROW combo sport F/F.

1051—Rumpler Taube F/F Half-A; The Fling speed job; Dummy Lifter PAA-Load; Whizz Wagon, Half-A speed.

851—Screamin' Demon speed job; Nordic towline glider; Jetex Opel scale rocket F/F. Tiny Tim tether or U/C Half-A; Pushie, beginner's rubber stick model.

751—Stunt Rocket U/C stunt; Flying Wing free flight; Skylark combo parts.

451—AT Interceptor twin U/C; PAA-Cargo Carrier; Whee-38.

351—Matthews' Crowbar PAA-Loader F/F; Beck's Petite Pete A/2'er; Ehling's Wakefield.

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"It seems that square cross sections and chopped tips are relatively new to many," says Royce, "but to the few modelers left who remember back a few years, we seem headed in the wrong direction. You no doubt recall the Buzzard Bombshell. Take a look at the wings on about 90% of today's 'modern' F/F's—they sure do look similar. And going back a little bit further there's the old KG! Very few of the modelers today have even heard of that good old job, but just take a look at most of the R/C models. They're modified a little but they sure have that 1936-to-1938 look."

Vancouver, Wash. Glo Bugs is the name of a year-old club out there. Combat is their strong forte. Activities info available from R. L. Ragan, 2006 Main Street.

Tear Jerker. Here's the printed message which Denny Davis places on all his free flight wings designed to wring tears from any eye: "This is an experimental model airplane. Often models of this type become lost . . . Finder—you can help strengthen the future of American model aviation if you will please notify the designer and builder of this model. Your kind help will certainly be appreciated." Then his name and address follow. This whole deal, which Denny says was composed by Paul Gilliam, is printed on colored tissues ready for doping. Denny calls it "wingtip poetry" and says best results occur when it's read to the accompaniment of a wailing violin.

More Light on Do'No Design. Daniel Sobala writes from Amherst's School of Engineering that we're not right in crediting the British with an earlier design similar to AT's Do'No Half-A tractor engine-in-pod-atop-pylon-wing free flight. He doubts if the British can take the honors for originating the high thrust line set-up. All credit, says he, should go to Phil Boynton, a well-known modeler in the Boston area.

We've spoken our piece so won't take sides in the matter. But we did think Dan's comments are of interest from the standpoint of design evolution—at least as it applied to a given area.

"During the war on an aircraft carrier in the Pacific (1945 I think)," writes Sobala, "Boynton designed and built his first model with the thrust line on a line with the wing and employing a polyhedral tail as well. Several mags carried a picture of one of his models later (including AT).

"About this time Paul D'Onofrio (from Belmont, Mass.) built a Half-A version of the model featuring a sheet tube boom and achieved tremendous success winning first place in over 50% of the contests he entered. Upon flying his designs in the New England area many others noting the excellent performance built similar ones (John Schneider in Schenectady, et al).

"So you can see that the design is not at all a recent one but has proved itself thoroughly during the past. Few existing designs can outclimb a properly trimmed Folly (Phil Boynton's name for his ship was Phil's Folly) and the Half-A version has won consistently in competition with A, B and C ships as well as in Half-A."

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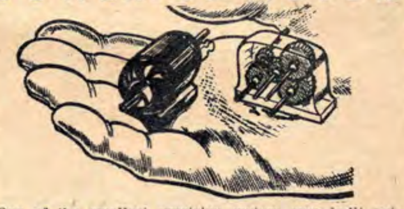

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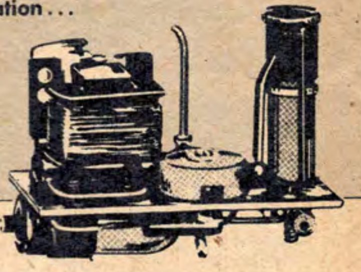

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WARREN BARTLETT— test flying Super-Aerotrol on Academy of Model Aeronautics special license KG2XDA says:

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- Completely portable—Self contained—No separate antenna—No external Batteries!
- Weighs 3.5 lbs. complete!

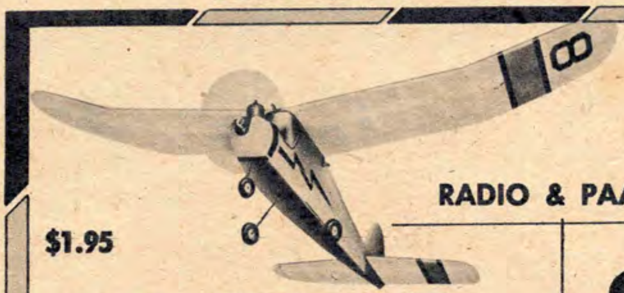
Kit includes all necessary parts (except tube and batteries): Precision Ground Crystal; Painted Metal Cabinet; Finished Sectional Antenna; stamped and formed chassis with all holes punched; all necessary components, resistors, condensers, coils and chokes; color coded wiring. Can be assembled in less than two hours. Complete building and operating instructions are included—

Kit— **$21.95**

*Prices and specifications subject to change.

SUPER AEROTROL

RADIO & PAA-Load Designs . . .



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BRIGADIER "R. C.-38"

For .035 to .099 Engines—38" Wingspan

This completely re-designed "½ A—A" Free-Flight may be flown as a Radio Control job, a PAA-Load model, or a free-flight Sport Flyer. Plans include Radio Control and PAA-Load installation details. The kit is pre-fabricated with formed gear, die-cut balsa and plywood parts, hardware and notched trailing edges.

BERKELEY Construction Kit

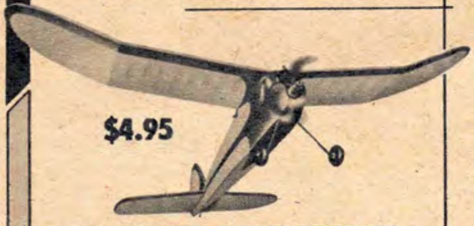
BUCCANEER "B" SPECIAL

For .23 to .36 Engines—56" Wingspan **$3.95**

BUCCANEER "C" SPECIAL

For .45 to .65 Engines—72" Wingspan **$7.95**

Perfect for sport and radio-control flying, this famous model features wing slots to prevent stalling, and a spin arresting tail design. This realistic rugged flyer has won numerous contests, and a place in modeldom's Hall of Fame.



$4.95

"SUPER BRIGADIER"

58" Wingspan—For .19 to .36 Engines

Especially designed by Henry Struck for Radio Control and PAA-Load flying. Plans show details for installation of equipment. Pre-fabricated.

$10.95

"SUPER BUCCANEER"

For .60 to 1.20 Engines—90" Wingspan

With over 200 contest prizes under its belt, this famous 7½ foot craft is perfect for radio control flying. Features a modified Eiffel airfoil section, 8.3 sq. feet of wing area, and a multispar wing. Ample cabin space for radio work. Weighs 5½ pounds.

$2.50

½A PAA-Load "BOOTSTRAPS"

40" Wingspan—For .035 to .049 Engines

Designed by Henry Struck for sport and PAA-Load contests, this easily built pre-fabricated kit features "Auto-Semble" construction.

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Berkeley's 1952 CATALOG . . .

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A MESSAGE TO THE AVIATION INDUSTRY:

Gentlemen,
You've Got to Put Jam on Their Bread!

"Has American aviation lost the American boy?" the editor of a contemporary 100% "full-scale" aviation publication asks. He is alarmed – and rightly so – at the tremendous decrease in the number of student pilot permits, the trickle of private licenses, the picayune number of personal aircraft being produced and the alarming spectre of closed airports.

The warning cry is heard echoing through the halls of government in Washington. "The need is upon us to develop a whole new generation of flying men," declares USAF's Chief of Staff Gen. Hoyt A. Vandenberg.

Has American aviation lost the American boy? Not by a long-shot. But it sure has given the youngster a swift kick in the pants. The fact that thousands of air-minded youngsters build and fly model planes, study ground courses within the Civil Air Patrol as cadet students and scrape together precious dollars for an occasional flight lesson is not to the credit of the multi-million dollar American aircraft industry. These "air youth" are carving out careers in aviation in the face of an almost complete lack of interest and assistance on the part of the aircraft interests and government aviation officials – most of whom seem to have forgotten they were once air-minded youngsters themselves.

Air Trails, the magazine of air progress and aeromodeling, edited for and largely written by the youthful aviation enthusiasts, has, since its inception, been requesting recognition and help from the adults-in-aviation for air-modeling programs, gliding and soaring training, lightplane flying and collegiate aviation activity.

The result? Practically complete silence on the part of America's aviation interests.

This is not a we-warned-you tirade. You can't stop the youngsters, gentlemen. They're going to get into aviation in spite of you. But will they get in fast enough, in great enough numbers and with the proper type of training to insure America's place in the air?

The answer is up to you leaders of aviation.

We do emphasize this important point: You've got to put jam on bread to change it from a staple dish to a dessert. Classroom ground studies are not enough! You've got to let the American teen-ager handle the stick, swing the prop, shoot a landing. You've got to get him out of the hot-rod and into the Cub. He'll meet you more than half-way. His heart is already in the skies.

His spirit is willing, gentlemen, but your sponsorship has been mighty weak.

Air Trails

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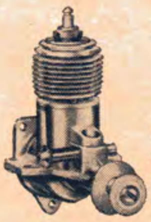

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